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1959

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 Cents

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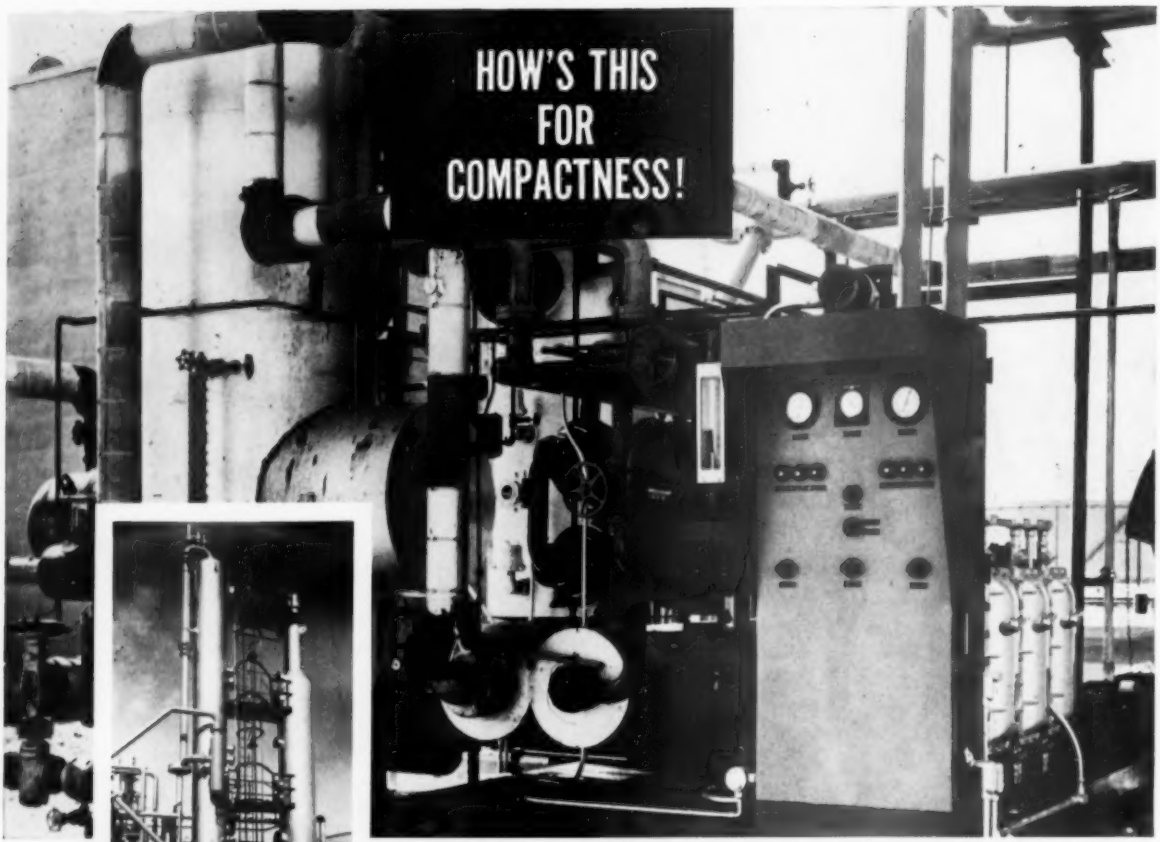

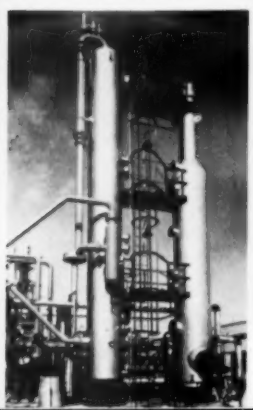

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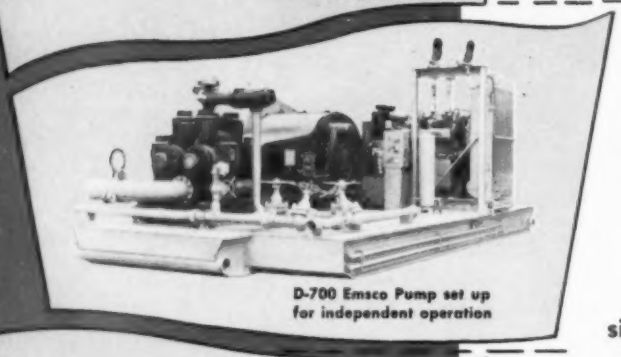
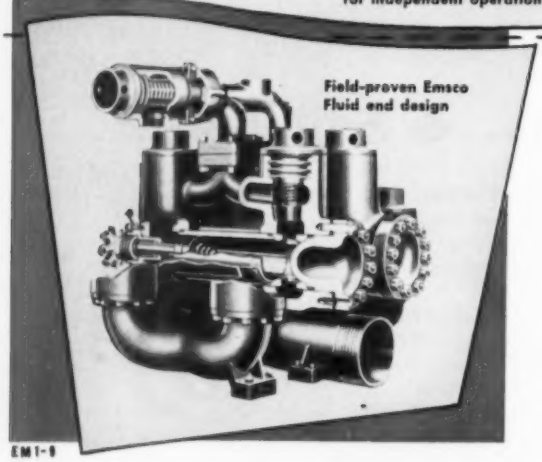


D-700 Emsco Pump set up for independent operation



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PETROLEUM WEEK

September 4, 1959
Vol. 9, No. 10

Published weekly by McGraw-Hill Publishing Co., Inc. James H. McGraw (1860-1948), founder. Publication office: 871 N. Franklin St., Chicago 10, Ill. See panel below for directions regarding subscriptions or change of address.

Executive, Editorial, Circulation and Advertising offices: 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary. Officers of the Publications Division: Nelson L. Bond, President; Harry L. Waddell, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator.

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INSIDE *Slant*

CANADIAN ACTIVITY UP

Western Canadian oil activity in the first half of 1959 was decidedly improved over that for the comparable year-ago period.

The Canadian Petroleum Assn. reports there were 1,217 oil and natural gas tests drilled in western Canada during the first half of 1959.

Total footage drilled for these tests was 6,121,427 feet.

The total tests drilled in the first six months is exactly 100 more than for the like period last year, when the total was 1,117.

Of that total, 401 were either wildcats or outposts. And of these 401 exploratory tests, 63 were successfully completed as oil producers and 52 as gas wells. There were 286 dry holes.

This year's wildcats and outposts totaled 429.

Oil production also increased during the first six months of 1959, when the average was 490,000 b/d.

This compares with an average of 445,010 b/d during the first half of 1958.

Gas production in Western Canada averaged 1¼-billion cu.ft. per day in the first half of 1959.

Lack of adequate markets has resulted in 950 gas wells being shut in.

LeRoy Menzing
EDITOR

Good Wells Make Good News

A Monthly Report on Wells That Are Now Worth More

September 4, 1959

New well or old, oil well or gas — acidizing by Dowell is frequently the most profitable way to make wells worth more. Here are four recent examples of successful treatments.

- **Dawson County, West Texas** (Discovery Oil Well) This wildcat was completed into the Fusselman (Silurian) pay through perforations from 12,064 to 12,088 feet. Two lower sets of perforations tested water and were plugged back. 500 gallons of Mud Acid was followed by 1500 gallons Dowell regular acid with a demulsifying agent added. Then 3000 gallons of Retarded Acid were injected. The well potentialled 405 bopd through a 3/16-inch choke with a gas/oil ratio of 34 to 1.

- **Carter County, Oklahoma** (Old Oil Well) This well was perforated into two zones of the dense Bois D'Arc formation between 6637 and 6670 feet. Most wells in this area produce low volumes at high pressures. Production from this well had declined to four bopd. Dowell recommended 15,000 gallons of Retarded Acid to increase drainage area. This was followed by 5000 gallons regular acid. Injection rate was 12 bpm. After treatment production rose to 35 bopd.

- **St. Landry Parish, Louisiana** (Old Gas Well) Production had declined to 600 mcfd at 2500 psi from the Cockfield formation. Well bore damage was believed to be the cause of excessive draw-down. Dowell recommended a two-part treatment consisting of 2000 gallons Super Mud Acid with a silicate control agent added, followed by 1000 gallons regular acid with silicate control agent. Injection rate was 2½ bpm. Production after treatment rose to 2.5 mmcfd at 2600 psi tubing pressure.

- **Young County, North Texas** (New Oil Well) This well had been completed through perforations into the Caddo lime between 3987 and 3997 feet. It made only a show of oil. Since the oil-water contact was at 4007 feet, extreme care was necessary to avoid water production. Dowell recommended 1000 gallons inhibited acid with a fluid loss control agent. Injection rate was held to one bpm. After treatment, the well tested 78 bopd with no water, flowing through a 13/64-inch choke.

If you have a well that needs stimulation, call your nearest Dowell representative. He may recommend an acidizing treatment tailored to your well, or he may suggest another Dowell treatment. In any case, you can be sure of competent engineering help. For service or detailed information, contact the Dowell office or station nearest you. There are more than 165 locations in the United States, Canada, Venezuela and Argentina. Dowell, Tulsa 1, Oklahoma.

Services for the oil industry DOWELL
DIVISION OF THE DOW CHEMICAL COMPANY

60-Second Summary / WHAT'S HAPPENING IN OIL

September 4, 1959

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Fears that the imports program may be "excepted" to death are groundless. Interior Dept. officials say the recent exceptions do not represent a softening of the government's attitude on controls. . . . p. 13

•

Crude price cuts ranging from 10¢ to 50¢ a bbl. were posted this week by three companies. The affected areas are in California, the Four Corners, and Kansas and Oklahoma. . . . p. 12

•

The recent show of oil and gas in the Yukon is sparking new interest in Canada's Far North. More drilling is slated to be carried out this winter. . . . p. 25

•

Canada's Royal Commission on Energy has recommended a "hard sell" program for Canadian crude. It warned obliquely that import controls may be next if the plan fails to boost output 200,000 b/d within 18 months. . . . p. 11

•

The Teamsters union has scored a significant victory in the Chicago area. Many dealers are signing a new contract which will reduce the work week of service station attendants to 40 hours by 1961. . . . p. 12

•

Bidding was hottest for the Spanish Sahara last week, as Spain opened the first bids under its new oil law. Some 260 applications were received for oil rights. . . . p. 44

•

Will more food chains start marketing gasoline? Oil men are carefully watching Food Fair's plans for 24 service stations in the greater Philadelphia area. . . . p. 46

•

The use of hydrogen-treating in refineries is expanding rapidly. Approximately 16% of all crude processed in the U.S. today has impurities removed in this way. . . . p. 36

•

Space-short Midwest suppliers are using "aquifers" to store gas near their markets. Use of the underground water-bearing formations saves dollars, too. . . . p. 48

•

A five-company U.S. group has slated six more wildcats in the Gulf of Paria. The group says exploration results to date are "disappointing—but not discouraging." . . . p. 42

•

Magnesium pellets are helping producers acidize wells by opening flow channels in dolomites and low-solubility limestones. . . . p. 28

Up to the Minute / SIGNIFICANT LATE NEWS

September 4, 1959

Standard Oil Co. (N. J.) and Humble Oil & Refining Co. are going to merge. It will be the first step in a plan to consolidate all producing, refining, marketing, and marine operations of Jersey's U.S. affiliates into nationwide operation under unified management.

Affected in the plan, in addition to Humble, are Carter Oil Co., Esso Standard Oil Co., Oklahoma Oil Co., and Pate Oil Co. All are owned 100% by Jersey with the exception of Humble, where the control is 98.27%. A new corporation will be formed and called Humble Oil & Refining Co., incorporated in Delaware, as the sole Jersey operating company in the U.S. Jersey will continue as the holding company.

•

Constitutionality of the import control program has been challenged by an independent marketer in Boston federal court. A suit was filed Wednesday by Thurman Pava, who operates four stations in Springfield, Mass., and Hamden and Waterbury, Conn. He invoked the due process clause, and contended that such controls were virtually unprecedented in peacetime.

Pava's suit against the Collector of Customs complained that he has been unable to get five drums of naphtha because he lacked the required allocation and license.

•

House approval of the controversial highway financing plan doesn't mean it'll clear the Senate without change. The House was expected to pass its proposal late this week, but Senate opposition is expected to produce a variety of counterproposals.

Sen. Joseph S. Clark, Jr. (D., Pa.), wants the money to be raised by rewriting the tax laws. Clark, at midweek, dropped his proposal to cut the percentage depletion allowance, as one of his fund-raising ideas. The House bill calls for a 1¢-a-gal. gasoline tax boost for the next 22 months.

•

A miscible flood program believed to be the largest in the world has been undertaken in Canada's Pembina field. Coupled with a conventional waterflood project, it will embrace 46,000 acres, or roughly 20% of the field's total acreage. Mobil Oil Co. of Canada, Ltd., is the operator.

•

Transwestern Pipe Line wants a new hearing on its proposed 1,800-mi. line from West Texas to California. Its petition to the Federal Power Commission complained that financial hardships and lengthy delays could doom the project.

Three independent Texas gas producers have finally gained FPC approval of an $894,000 annual rate increase. They are H. J. Mosser, Orange Grove Oil & Gas Corp., and Associated Oil & Gas Co.

•

Oil men will have to pay more for borrowed money starting this week. Prime rates of commercial banks went up from 4½% to 5%

A Phosphorus Additive for every need

With the use and benefits of phosphorus additives getting more attention throughout the Industry, here's a summary of what Ethyl offers as a phosphorus additive supplier.

Choice of additives to meet your specific needs. There are now *three* "Ethyl" additives. Each has its particular advantages, and you can choose the one that best suits *your* needs.

Competitive in both price and quality. Phosphorus content is competitively priced, and all compounds are of the highest quality.

Free of royalties—with but one exception. Of the three "Ethyl" Ignition Control Compounds, only one is subject to royalties, and the specific benefits of this compound may outweigh the slight extra cost.

Backed by technical service. All additives have been thoroughly tested, and data are available on their performance in engines, behavior in a wide range of gasolines, and effect on surface ignition, spark plug life and rumble. In addition, Ethyl's experienced automotive engineers are available to assist in handling technical problems.

Bright prospects for the future. For years, Ethyl has carried on many research programs looking for more and better phosphorus compounds. Many look interesting. One in particular holds much promise for the near future.

In one sentence, Ethyl offers you the finest line of phosphorus additives today (backed up by a full range of product services), and a prime source of more effective, lower-priced additives in the near future.

For full details, ask your Ethyl representative

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In these fascinating pages you'll read about the wildcatters, prospectors, and hunch players—their tough boom towns, their dogged persistence and wild successes, and the brutal competition they faced. Many rare historic photographs are included.

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DEPT/Opinions

Views That Make News . . .

"I am convinced that ever rising gasoline levies and other highway user taxes and the continued diversion of some of these funds into general treasuries in Washington and in some state capitals will seriously jeopardize the interstate highway program and cause another round of tax increases. . . . The average citizen is becoming disenchanted with grandiose interchanges, extravagant clover leafs, and a mounting tax load."

—F. B. HUFNAGEL, JR.
Marketing representative
Sun Oil Co.

"Natural gas is the factor most likely to influence oil prices in the future. A high proportion of the discovery costs of oil and gas reserves are joint, and cannot be allocated except by some arbitrary means. Because the bulk of the gas moving into the market place competes with fuel oils, the most realistic allocation of joint costs would be in terms of the market impact of natural gas.

"But the system of federal and state regulation under which gas is brought to market does not permit the allocation of costs in terms of the market impact. Consequently, a large proportion of the discovery costs must be allocated to crude. And this necessarily is reflected in the prices of refined oil products.

"Thus, the consumer of oil is forced to subsidize the consumer of gas. Since it bears a disproportionately small share of the cost burden, gas can enter the market with a lower price tag than oil. That permits it to capture markets from oil. But, by this process, gas is effectively killing off its own sponsor; it gradually saws off the limb which supports it."

—JOHN G. WINGER
Petroleum economist
Chase Manhattan Bank

"Net profit is naturally our main concern. However, I am unable to foresee appreciable margin increases for jobbers, dealers, or oil companies until we all come to the realization that our selling prices have not kept pace with our changing economic picture.

"Petroleum suppliers could adjust their thinking from the 'incremental gallonage' theory to that which would let actual demand dictate refinery runs. There are many refiners who will reduce crude runs in the face of sales declines, but too many others continue running at full capacity or far in excess of their needs, thus necessitating the dumping of products at sacrifice prices. And those products actually serve to break price structures for all."

—J. M. SHEA, JR.
Vice-president, marketing
American Petrofina, Inc.

"Perhaps the most serious item affecting profit in the first half-year has been the retail gasoline price war that continued to plague the industry in the large marketing areas of Ontario and Quebec. Our marketing policies are such that I can say with complete assurance that [Canadian Oil Companies, Ltd.] has not in any way prompted or prolonged this situation. However, we have found it necessary to assist our dealers to meet competition, and the consequence is a heavy drain on our earnings. Just when normal conditions will be seen again throughout the industry is difficult to say, but our earnings for 1959 are certain to be affected."

—W. HAROLD REA
President
Canadian Oil Companies, Ltd.
Toronto

. . . and Letters

Dear Sir:

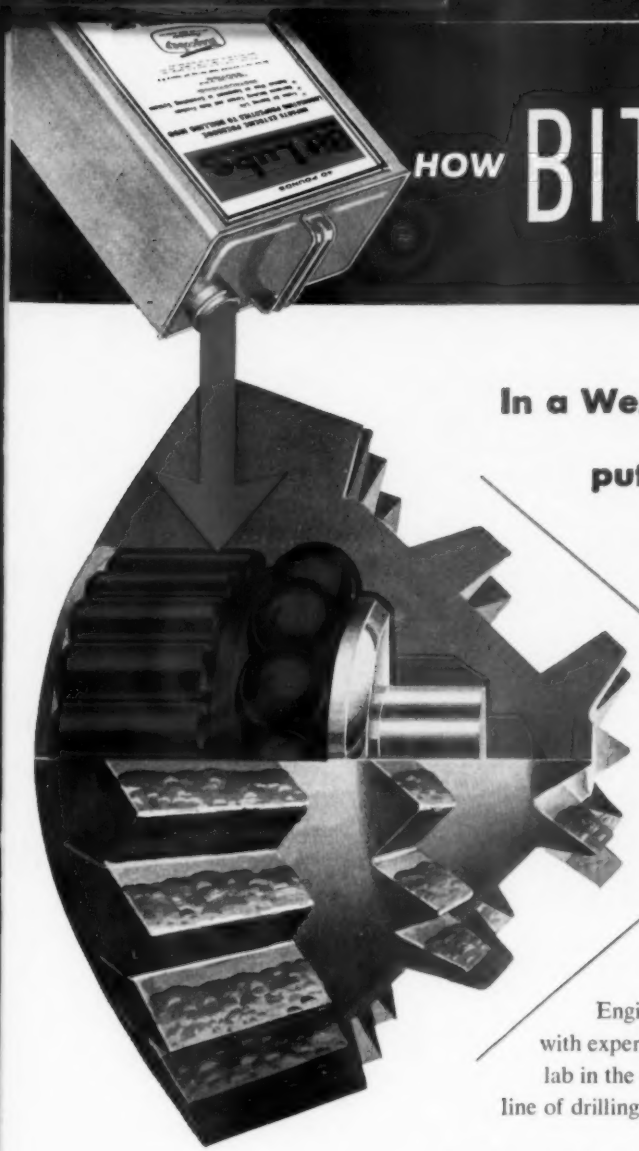
We would like to point out that the news recently reported in your What's New in the Industry [PW—Jul.31'59,p18] and "Persian Gulf Wild Test Has Oil" [PW—Aug.14'59,p15] is entirely wrong and rootless.

You wrote, in the former number, that "the Japanese reportedly are looking for U.S. tankers for a share of their offshore Neutral Zone concession. Failure of Arabian Oil Co.'s backers to produce enough capital to assure continuation of drilling prompted the move," and further, some words to the same effect were put in the latter issue. But there had no such fact existed and, therefore, we had never attempted to make any such proposal.

We hereby request you to correct those errors on the earliest opportunity in order to have your readers rightly informed.

YOSHIMARU KANNO
Managing director
Arabian Oil Co., Ltd.
Tokyo, Japan

PETROLEUM WEEK *will publish reader comments each week. Address letters to LeRoy Menzing, Editor,* PETROLEUM WEEK, *330 W. 42nd St., New York, 36, N. Y.*



HOW BIT LUBE AND MAGCOBAR ENGINEERING CUT DRILLING COSTS

In a West Texas Well, Magcobar Engineers put a film here *to make* *net savings of $4.87 per foot*

	NO. BITS	BIT SIZE	INTERVAL	ROTATING HOURS	WEIGHT ON BIT	RPM
BIT LUBE-WATER	28	7⅞"	4919-7272	185	70-90,000	60-80
WATER	40	7⅞"	4936-7278	379	45-60,000	55-60

You are always sure of getting every cost-cutting advantage with Magcobar. Here's why: The Magcobar Mud Engineer combines a thorough knowledge of drilling fluid chemistry with experience in your drilling area. This background—plus the top mud lab in the country—gives new dimension to the finest and most complete line of drilling mud products. What does this mean to you? The highest level of product performance to cut your drilling costs.

Here's proof of actual savings using Bit Lube (E. P. Additive for Mud). The table shows a drilling cost comparison in the Brownfield, Texas, area. The Bit Lube well was drilled for $4.87 per foot less than the offset well. Total savings in bits, trips, and drilling was $13,420. Bit Lube and emulsifiers cost $1,940; a net saving of $11,480!

Bit Lube forms a tough protective film to reduce friction and to increase bit bearing life under extreme pressure conditions. It works best with high weight on the bit and fast rotary speed. Bit Lube and Magcobar engineering may be the answer to your bearing failures.

Bit Lube is only one of Magcobar's many answers to the problem of high drilling cost, a problem that demands the right answers. You'll find that the right products *used right* by Magcobar can cut costs on your next well, too.

MAGNET COVE BARIUM CORPORATION
HOUSTON, TEXAS

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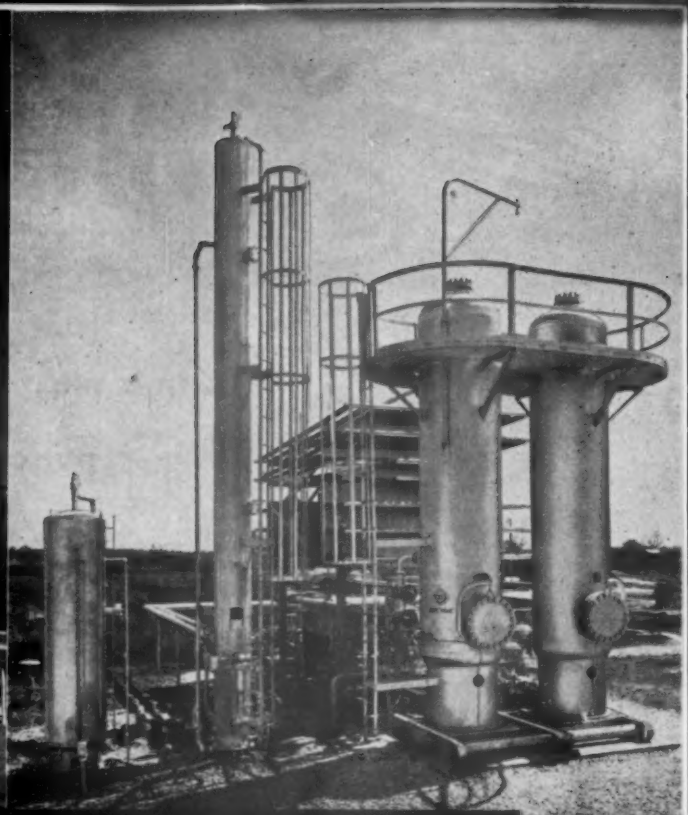
Complete
DRILLING MUD SERVICE

Another Well Done *with Magcobar Technology !*



Which Is Best For My Application . . .

COLD FRAC or DRY FRAC?

Although the BS&B COLD FRAC and DRY FRAC processes and equipment are entirely different, both will dehydrate gas and recover hydrocarbon liquids while operating on an unattended basis. How, then, can you determine which process will give the best results for a specific application?

Generally, the COLD FRAC process is favored for use on a stream rich in C_5^+ hydrocarbons. Variable design factors such as separation temperature, partial stripping of fluid, and balancing of the process to utilize equipment to its maximum capacity greatly affect the economics of this process, but it is not affected to any great degree by inlet temperature.

The DRY FRAC process is highly effective on streams with a low C_5^+ GPM. Its efficiency is less affected than that of COLD FRAC by the composition of the wellstream, but it will recover a higher percentage of available pentanes from wellstreams of lean composition.

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Canada Pushes 'Hard Sell' Plan

- **The Royal Commission on Energy says crude output must be hiked by 200,000 b/d within 18 months to assure vigorous growth.**
- **It obliquely warns U.S. companies to make room for the increased output or face the possibility of import controls on crude.**

The recommendations of Canada's Royal Commission on Energy can be boiled down to a simple statement: Make way for another 200,000 b/d within the next 18 months, or establish import controls to safeguard the fledging oil industry.

The commission's final report was released last weekend by Prime Minister John G. Diefenbaker. Almost two years in the making, it was prepared by a special study group headed by Henry Borden, a Toronto industrialist.

In effect, the commission outlined a "hard sell" program for Canadian crude, with particular emphasis on U.S. markets.

The commission described the U.S. as the "only presently attainable export market for Canadian crude" because of high exploration costs and landlocked wells.

It feels that the recent exemption from U.S. import controls of crude, unfinished oil, and finished products from Canada represented a substantial change in the attitude of the American government toward Canadian oil.

The commission conceded that many problems remain, but that "this exemption could be the first step leading toward the development of a continental oil policy, under which Canadian and American crudes would be freely used in refinery areas of the North American continent, supplemented by such imports of foreign crude as might be necessary to augment any shortage of supply."

U.S. refiners were urged to "cooperate or else" in the plan to hike Canada's oil output.

The words were polite, but the intent was obvious.

"To effect any substantial and stable increase in Canadian exports," the report said, "it will be necessary for the Canadian oil industry and the companies operating refineries in the United States, accessible to Canadian crude, to follow policies which will result in Canadian crude being used in these United States refineries, in place of crude from other sources, so that Canadian crude will become a continuing source of supply."

At another point in its lengthy summary, the commission noted that removal of import restrictions does not automatically mean that Canadian crude will expand into U.S. markets.

It said bluntly: "Energetic steps must be taken by Canadian oil companies, in conjunction with their international affiliates, to ensure that Canada will be able fully to enjoy the benefit of the exemption accorded to it by the United States."

The commission's target is 700,000 b/d by late 1960—almost 50% more than the Canadian industry produced in 1958.

The commission said that in 1958 the petroleum industry had a productive capacity of 989,000 b/d. Shut-in capacity has increased steadily, it pointed out, to the point that actual production in Western Canada today is no more than half of capacity.

Projections indicate that productive capacity will exceed 1-million b/d this year, and 1¼-million b/d in 1961.

In contrast, Canada imported 45% of its domestic requirements of crude in 1958, and utilized only 47% of its potential production. Forecasts indicate that requirements for Canadian crude in Canadian markets will decline even more in 1960 and 1961, unless something gives.

The commission isn't too keen about import controls, but it feels that this step should be considered if the Canadian industry is to become healthy, strong, and vigorous.

At the present time, foreign crude is not interfering with the use of Canadian crude in the refinery areas in Canada to which the latter can be transported in adequate volumes by existing pipeline facilities.

But if it does, the Borden Report went on, it may be necessary to license imports of crude, and to deny such licenses to refiners in any area where requirements can be met by Canadian crude.

The licensing system could be imposed on a nationwide basis, or it could be made applicable to only one or more refinery areas as the circumstances might dictate.

A proviso added that crude imported through a pipeline or by motor carrier or rail, and produced in the country from which it is imported, be exempted from such licensing.

This eliminates U.S. crude from the picture; thus, any import controls would apply only to crude coming from the Middle East and the Caribbean, primarily Venezuela.

The commission was cool to the idea of a trans-Canada pipeline to move crude from the West to Montreal, where the foreign oil is processed.

Many Canadian independents had supported the proposal to build a 2,000-mi. pipeline, seeing in it an opportunity to capture the Montreal refinery market for Canadian crude.

Major Canadian oil companies, that operate refineries in the Montreal area, many of which are American subsidiaries, had opposed the project.

The commission took note of their resistance, and conceded that as long as they are free to import crude, the building of such a pipeline would be uneconomic, could not be financed realistically, and would be useless anyhow.

In addition, it admitted, the dislocation of the foreign oil could only lead to involvement of Canada's foreign relationships, trade balances, and other matters of international concern.

But again, the commission alerted the American companies to the potentials. "These [Montreal] refineries," it said, "should be prepared to strive assiduously to offset their imports of foreign crude by exports to United States markets."

The Commission did not let the pipeline idea die entirely. It declared

the whole matter could be reviewed later, in the light of developments in the campaign to build up the Dominion's industry.

As a corollary, the Commission recommended that prompt steps be taken to displace about 50,000 b/d of products moving from the Montreal area to the Ontario market with products refined from Canadian crude.

Reaction to the commission report in Western Canada was varied.

John W. Proctor, general manager of the Canadian Petroleum Assn., whose headquarters are in Calgary, said the CPA membership differed in its feelings. He added:

"It must be remembered that the conclusions of the Borden group are only recommendations of a Royal Commission. They now have been placed before the Federal government, whose responsibility is to accept, reject, or modify proposals as it sees fit, mindful of the healthful growth of the Canadian petroleum industry as a vital part of Canada's economy."

A group of independents who long had advocated the pipeline were enthusiastic nevertheless. Strategy meetings were programmed immediately.

Most favored by the independents was the recommendation suggesting an embargo on oil imports if efforts to expand the petroleum horizons fail during the next 12-18 months.

Some independents viewed the Borden recommendations for expanded markets in the U.S. as a "direct threat," meaning that Canada will get tough unless more Canadian oil finds new markets beyond its borders.

Among the independents who have conferred already are Home Oil Co., Ltd., Canadian Husky Oil Co., Ltd., Consolidated Mic Mac Oils, Ltd., Canadian Devonian Petroleums, Ltd., Canadian Export Gas & Oil Co., Ltd., and Royalite Oil Co.

One big independent didn't share the enthusiasm, however. A. G. Bailey, general manager of Bailey Selburn Oil & Gas, Ltd., brusquely dismissed the report as "no better than the Borden report on Gas." At this stage, he said, it offers no more than "stopgap ideas" instead of solid advice and actual policy recommendations for clearing up the confusion.

Union Cuts Crude Prices Again

Union Oil Co. of California this week initiated its second price cut of the year on California and Four Corners crude.

Union's cut, effective Sept. 1, ranged from 10¢ to 50¢ per bbl. in some 90 California fields where it purchases crude. The reduction at Four Corners, effective on the same date, was 30¢ per bbl.

Reese H. Taylor, Union chairman, attributed the reduction to competition in California from low-cost foreign oil and products made from it, both domestically and in foreign refineries.

Generally, Union's prices for 14-gravity crudes and below will be scaled down 10¢ a bbl. to $1.76 a bbl. For top-gravity crude, 27 degrees and above, the price will be $3.17, down 50¢ a bbl.

The new price for 40-gravity oil from the Four Corners area will be $2.60 a bbl., a reduction of 30¢.

Union's initial effort to reduce prices in California failed to stick.

This was back on Mar. 1, when it cut its California prices up to 60¢ a bbl. At that time, the Four Corners area crude was slashed from 57¢ to 60¢ a bbl., making the range from $2.12 a bbl. for 36-gravity up to $2.20 a bbl. for 40-gravity and above (PW —Mar.6'59,p15).

The prices, however, were restored at the end of the month.

Whether Union will stick by its guns or obtain support from other companies on the latest price reduction remains to be seen.

Alleviating the effect of the cut to a large degree is the fact that a large portion of Union's purchases are on long-term contracts which carry an average price clause.

This means that, although Union buys in excess of 100,000 b/d, the actual amount of crude affected by the cut is small.

Meanwhile, Standard Oil Co. of California listed its first posting for California offshore crude.

The posting calls for $3.64 a bbl. for 40-gravity and above, ranging downward to $3.29 a bbl. for 34-gravity.

In addition to the California and Four Corners adjustments, this week also brought local cuts in southwestern Kansas and the Oklahoma Panhandle.

Derby Refining Co., and Cooperative Refinery Assn., effective Sept. 1, reduced by 15¢ a bbl. the posting for crude in the two areas.

The cut brings the level for 40-gravity crude down to $2.70 a bbl.

Some 15,000 b/d in Kansas and 4,000 b/d in Oklahoma are affected.

Dealers Grant 40-Hour Week

Chicago Teamsters won a strategic battle this week when many dealers signed a labor contract which will reduce the work week for station attendants to 40 hours by 1961.

Among the early signers of the controversial three-year agreement were independent, company-operated, and lessee stations.

The Teamsters' victory may mean the demise of the Gasoline Retail Dealers Assn. of Metropolitan Chicago.

At mid-week, Teamster Local 705's secretary-treasurer, Louis Peick, said the pact had been signed by approximately 500 lessee dealers who had bypassed the association's earlier rejection (PW—Aug.15'59,p16) and by virtually all offbrand dealers in the metropolitan area.

Peick said that "dealers are still coming in to sign," and that Standard Oil Co. (Ind.) "hasn't signed yet, but it will without a doubt."

The dealers' capitulation seemingly strengthens the power of Local 705, which also controls tank wagon drivers. Here's why:

(1) Independent dealers, whose support was needed by lessee dealers in the negotiations, were the first to sign after bowing to union strike threats. This weakened the pace-setting mood of numerous lessee dealers who were forced to follow suit.

(2) Indiana Standard's strategically-located stations reduce the impact of the association's position even more. As one dealer phrased it: "When Indiana signs for these stations, what can the rest of us do?"

The contract provisions include a reduced work week, time clocks, and extra holiday pay.

Many sources predict the pact will have far-reaching effects throughout the industry.

Here are the contract highlights:

- A step-by-step reduction in the work week of station attendants with no reduction in pay. The first reduction is to 46 hours, with a second cut to 44 hours on May 1, 1960, and the final one, to 40 hours, on May 1, 1961.
- Time clocks will be installed, and work cards will be punched by all employees.
- An extra paid holiday for employees when holiday falls on their scheduled off-days.
- Rearrangement of work shifts, and a new classification of assistant manager in some stations.

Import Plan Safe Despite Changes

Changes that have been made in the mandatory import program since it became effective in no way threaten an "erosion by exception" of the over-all plan, Interior Dept. officials say.

Such a fear of changes affecting the plan has been voiced by some oil men —officials who recall the precedent of the original voluntary plan, which became effective in 1955.

That plan, based on the original recommendations by the President's Cabinet Fuel Policy Committee, of a 1954 ratio of imports to domestic production, was eventually "excepted to death," in the opinion of many.

The two changes that have been made—exemption of overland imports to the U.S. and increases in Puerto Rican imports—cover situations that were anticipated in the presidential proclamation of last March.

Interior officials explained to PETROLEUM WEEK this week that the most important change in the program—the Canadian and Mexican import exemption of last Apr. 30—represented no "softening" of basic governmental attitudes on oil imports.

They note that paragraphs 3, 6, and 8 of President Eisenhower's proclamation of Mar. 10 "indicate" that the mandatory control plan was conceived as part of a "hemispheric oil policy in which Canada and Venezuela would get special consideration."

While the amended plan carries out that "intention" with regard to Canadian imports—oil shipped via overland transportation—it does nothing for Venezuela, the Washington observers note. And, in their opinion, the current rules of the plan make it just as restrictive as when the program was initiated.

There is a chance, however, that import controls on residual fuel oil may be suspended before the end of the year. This would benefit Venezuela (page 18).

The overland, or Canadian, exemption was also expected as an aid for U.S. refiners who could not obtain "a continuous and economic supply" of domestic oil.

That situation, government import officials comment, was covered in Section 12 of Import Regulation 1.

The imported oil desired by refiners located in the northern tier of states was Canadian crude.

So, the Interior officials say, when Eisenhower decided last April to exempt overland imports to the U.S., Section 12 of the rules was no longer needed, and, therefore, was killed.

The change permitted in Puerto Rico is entirely a special-circumstance change, which applies to a local situation, according to Interior Dept. import officials.

The original proclamation gave special attention to Puerto Rico, and government officials say the "spot" relief —the increase in jet fuel imports for the military and a hike in asphalt imports granted Shell Co. (Puerto Rico) last week—does not go beyond the directive of paragraph 5 of Eisenhower's proclamation.

In fact, one official says, even a "broad relief," which he indicated could be granted in Puerto Rico, would not go beyond the directive, nor would it have any bearing on the rules for continental U.S. importers.

Oil Import Administration officials do concede, however, that granting allocations for specific products—as was done in Puerto Rico—represents a new idea in import rules, and could set a precedent.

No one is willing to say whether a similar procedure might be followed for mainland refiners.

But some industry observers say it wasn't necessary to grant the specific allocations—jet fuel and asphalt—as OIA decided to do. All that was necessary, they note, was for it to grant a hike to the Military Petroleum Supply Agency and to Shell in the over-all category, finished products other than residual.

Steel Facts: Oil's Prestrike Supplies Were Up 97.9% Over '58

	First Half 1958	Second Half 1958	Total 1958	First Half 1959	Increase First Half '59 over First Half '58
		(Net Tons)			
Industry Total	1,724,963	1,685,255	3,410,218	3,413,154	97.9%
Where the steel went:					
Warehouses and Distributors	463,947	540,563	1,004,510	1,301,606	80.6%
Construction, including Maintenance	1,105,463	944,322	2,099,785	1,706,500	54.4%
Drilling	155,553	150,370	305,923	405,048	160.4%
The major items were:					
Standard Pipe	64,199	60,373	124,572	76,914	19.8%
Line Pipe	903,317	861,924	1,769,241	1,583,124	75.3%
Oil Country Tubular Goods	430,048	497,505	927,553	1,291,168	200.2%

Source: American Iron & Steel Institute. Tonnage includes all carbon, alloy, and stainless steels, but does not include containers or machinery.

Oil's prestrike inventories of steel were substantially more than most people suspected.

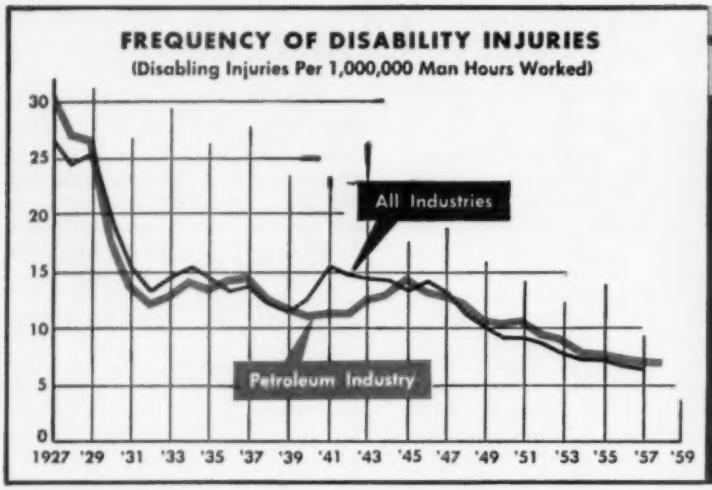
Statistics prepared by the American Iron & Steel Institute show that steel shipments to the oil industry in the first half of 1959 actually exceeded those for the entire year of 1958.

First half shipments in 1959 were 97.9% higher than the same period of last year. Oil country tubular goods were up 200%.

The statistics provide dramatic evidence of why the oil and gas industry had little, if anything to worry about during the first 60 to 90 days of the strike.

Previous reports, based mostly on estimates, indicated steel inventories would remain strong until mid-September, after which spot shortages could be expected to develop (PW—Aug.21'59,p15).

Steel really poured out of the mills during the first six months of 1959. Shipments for all uses exceeded 48-million net tons, compared with 59-9-million tons for the entire year of 1958.



"Lives and limbs are sacred trusts"

Oil's Safety Record Is Impressive

Twin programs stressing accident prevention and fire protection techniques have enabled the U.S. petroleum industry to rack up an enviable safety record in recent years.

Despite the fact that it gets bigger and bigger, the oil industry is steadily becoming a safer place to work, and less and less of a hazard to its neighbors.

Some of the statistics are spectacular, particularly the 78% decline in the frequency rate of accidents in the last three decades, the American Petroleum Institute says.

Today, only one disabling accident occurs in the course of 143,356 hours on the job.

Another impressive indication of oil's safety achievements is that petroleum workers are 4½ times safer on the job than in their own homes.

The frequency rate of accidents declined in 1958 for the seventh consecutive year. Not only that, they were less severe.

The frequency decline was modest, from 7.05 accidents per million man hours worked in 1957, to 7.00 in 1958. But even that little change preserved the healthy trend that has been apparent right along.

The severity rate reflected similar improvement. It dropped to 704 days lost per million man hours worked in 1958, from 1957's 712.

Over-all, oil's safety record closely parallels that of all industry (chart, above).

This is somewhat remarkable, since oil's products are more volatile, and its operational facilities potentially more hazardous, than most industries.

The chart illustrates the impact the mid-30s and the war years had on safety. New employees, and others returning from depression-spawned layoffs, were more accident-prone than usual. The push of war-time requirements and the influx of unskilled labor brought another sharp increase in the frequency rate in the early forties. The decline since 1945, however, has been as steady as it is impressive.

Fire protection has shown steady improvement, too.

Current statistics, covering 1958, are being compiled now by API. There seems little doubt that they will merely extend the dramatic scope of the picture from 1935 to 1957 (chart, page 15).

In this span of 22 years, insurable value of oil facilities vaulted from $3-billion to $13-billion. Fire losses were relatively minor. In 1957, they amounted to $8-million—an insignificant one-half of one percent of insurable value.

This record has paid an extra dividend to the industry. Back 25 years, oil companies had difficulty obtaining insurance; today, in some areas, they have the lowest rate of any industry.

Principal reasons for this are the careful training of employees in the handling of fire fighting equipment, and the highly efficient fire fighting units organized among plant personnel, according to API.

Today, the chances of a fire originating outside and spreading into an oil property are 3½ times greater than they are of its starting inside spreading out.

The record of refineries is worth particular notice: an average of only two fires per plant per year, usually minor. The average refinery represents an insurable loss of more than $35-million, yet it suffers an average fire loss of less than $30,000 per year.

Service stations are among the safest places of all.

More people are familiar with service stations than any other oil installation. And in all probability, more people enter and leave service stations than all other oil installations combined.

API points to a Detroit survey which showed the probability that only one pedestrian will be injured by a motor vehicle at a service station for every 536 years of its operation.

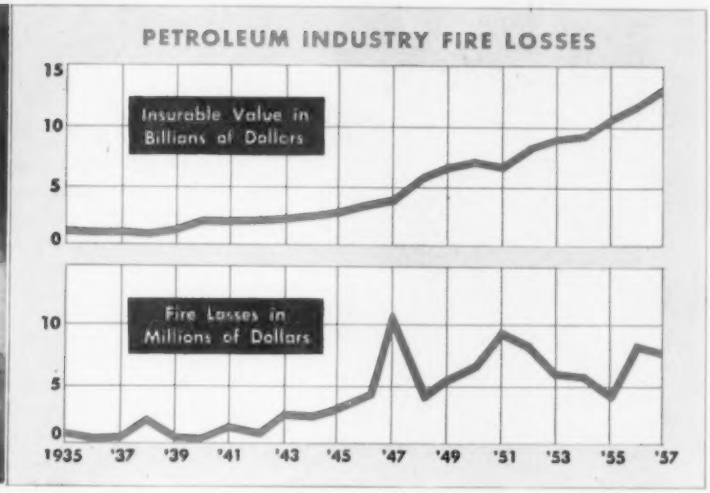
The potential risk of injury to occupants of a motor vehicle at a service station amounts to a ratio of only one in 119 years.

The fire record is even more sensational. Comparative figures show that, on the average, the chances of a fire at a service station are one in 200 years.

Statistics indicate that there is less chance of a fire at service stations than there is at churches, schools, restaurants, taverns, and hotels.

These specific figures were cited by API: service stations, 0.52 fires per hundred properties; churches, 1.05 per hundred buildings; schools and colleges, 2.65 per hundred; restaurants and taverns, 5.6 per hundred; hotels, 48.3 per hundred.

The coordinated effort to preserve lives and limbs and the physical as-



sets of the petroleum industry began close to 40 years ago.

Actually, fire protection activities came first, being organized in 1920 under the auspices of the newly-chartered API.

Two years later, API set up a cooperative relationship with the National Fire Protection Assn. and the National Board of Fire Underwriters.

Some of this early work included compilation of data, and formulation of recommendations on tank vents, flame screens, fire records, standards of safe practice, and protection of tanks against lightning.

Still later, API allotted $10,000 per year to the National Safety Council to employ a petroleum safety engineer.

When conviction grew that effective growth of the program depended upon its being centralized in the institute itself, the engineer was transferred to the API staff in January, 1931, on a full-time basis.

In terms of organizational structure, the industry's program has developed into two parallel efforts.

Closely related, yet operating as separate entities, are the API Central Committee on Accident Prevention, formed in 1939, and the Central Committee on Fire Protection, established in 1946.

These two committees, in conjunction with nearly two dozen specialized committees, gather and pass along to oil companies information and data to assist them in protecting their employees and property against accident and fire.

The program covers a variety of subjects.

The Central Committee on Fire Protection concerns itself with underground storage tanks, gas and electric cutting and welding, static electricity and stray currents, and fire protection in refineries and on drilling rigs.

The Central Committee on Accident Prevention deals with such matters as statistics, safety in drilling and production operations and in pipe line operations, personal protective equipment, and tank cleaning.

The results have been intriguing and beneficial. For example, not many years ago the industry was being hounded by law suits based on claims that static electricity ignited vapors.

No one knew the answer for sure. Finally, a fellowship was created at the California Institute of Technology. From this came a report that enabled oil men to contest such claims.

Since then, static electricity more often than not has been ruled out as a cause of fires.

API is the first to admit that primary credit for the safety and fire protection records belongs to the companies, and the programs that they have adopted.

But API is still a key factor.

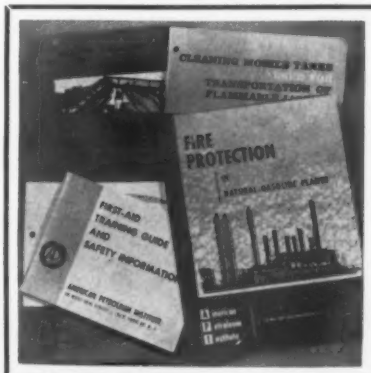
Over and above its committee work, it has created two special awards to recognize outstanding performances.

One is a handsome-looking Accident Prevention Certificate, which is given to companies with injury-free records over specified periods. Last year, the institute presented 245 such awards to 32 companies for working the equivalent of 172,682 man-years without a disabling injury.

Another API recognition is the Meritorious Safety Award, a gold medal and certificate which are given to individuals for outstanding acts of heroism or rescue on or off the job. Many recipients of these gold medals received their first aid training in company-sponsored programs.

API's safety and fire protection services are located in the New York headquarters, under the over-all direction of Staff Engineer Elmer O. Mattocks. Devoting full time to the staff work are two veterans: F. G. Wilson, in charge of accident prevention; and J. F. McKenna, fire protection.

The guiding philosophy of safety activities for the institute, and the industry as a whole, is two-fold: (1) The well-being of the individual worker is a sacred trust; and (2) there is no replacement for a lost life or a maimed body.



Manuals, guides, and data sheets on safety are prepared regularly by API committees for industry use. About a score are in existence now, ranging from service station safety to static electricity, lightning, and stray currents. They are revised periodically. A new edition of the guide on fire protection in refineries, for example, is scheduled for publication shortly. Another, on driver training, is in preparation.

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What's New / IN THE INDUSTRY

There will probably be a one-year delay in setting off the hydrogen bomb shots in the Athabasca tar sands and the Green River oil shale to unlock oil from underground formations. The reasons: weather conditions and administrative hurdles, according to John S. Kelly, the Atomic Energy Commission's chief of peaceful nuclear explosives. The Athabasca shot had been timed for the coming winter, and the Green River shot for the spring of 1960.

•

A federal grand jury in Boston has indicated 17 companies and a trade association on antitrust charges. The jury accused the companies—including Allied Chemical Corp. and Koppers Co.—and the Bituminous Concrete Assn. of fixing prices and allocating the markets of asphalt, road tar, and bituminous concrete.

•

Kerr-McGee Oil Industries, Inc., second largest purchaser of Oklahoma crude, has withdrawn its application to continue proration for September and October. Kermac's proration to 65% of April runs, authorized by the Oklahoma Corporation Commission for July and August, will be discontinued Sept. 1. A company spokesman says the lifting of proration was the result of a recent improvement in demand for Oklahoma crude. Kermac normally purchases in excess of 55,000 b/d in Oklahoma.

•

Cities Service Oil Co. and General American Oil Co. of Texas last week added to their already large interests in the Dora Roberts multipay oil and gas area of western Midland County and eastern Ector County (Tex.). In a $12.5-million transaction—including a cash payment of about $3-million—the companies got working interests and royalty rights in 30 tracts of 80 acres each from the heirs of the late Mr. and Mrs. L. E. Brown. There are eight producing wells—some dually completed—on the leases, with a total average production of 1,200 b/d. Many of the wells also produce gas. The two companies will share equally in the properties.

•

A severe earthquake paralyzed oil operations in Mexico's Isthmus area last week. And the 50,000 b/d Minatitlan refinery was shut down due to possible fire hazards. Petroleos Mexicanos says oil installations suffered considerable, but not long-range, damage.

•

Two branches of the Oil, Chemical & Atomic Workers Union have been fined $1,000 each on picketing charges at Sugar Creek. A Jackson County (Ind.) Circuit Court judge fined OCAW Local 5-672 and the International OCAW on contempt charges stemming from union picketing interference with free entry and exit from Indiana Standard's Sugar Creek (Mo.) refinery. Local 5-672 has been on strike there since July 8.

•

J. Paul Jones, of Bradford, has been reelected president and executive manager of the Pennsylvania Grade Crude Oil Assn. Karney R. Cochran, of Bradley Producing Corp., Wellsville, N.Y., was elected second vice-president, succeeding A. C. Simmons, who resigned. Other reelected officers are: George J. Hanks, South Penn Oil Co., first vice-president; Fayette B. Dow, Washington, D.C., vice-president and general counsel; and Samuel Messer, Quaker State Oil Refining Corp., treasurer.

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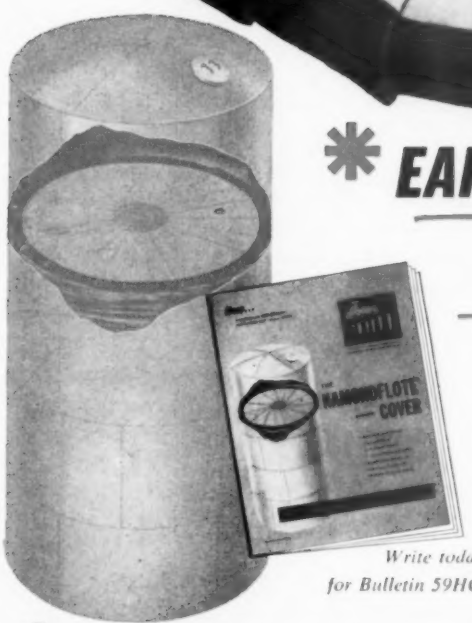

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Looking Ahead in Washington

Mc-Graw-Hill
Washington
Bureau
September 4, 1959

Import controls on residual fuel oil may be suspended, at least temporarily. Since early June, the Administration has been under pressure from New England and from Venezuela to remove the curbs on residual fuel oil and asphalt. Coal-state Congressmen reportedly have been blocking such a move. Their opposition to complete decontrol for residual fuel oil and asphalt could lead to a two-part compromise.

As it shapes up now, the plant is to retain controls on asphalt imports, and to suspend—but not "remove"—curbs on residual. This has not been offered to Venezuela yet as a formal proposal, although there have been informal suggestions along these lines.

Suspension of controls would be on a product basis—not country of origin. But Venezuela would be the principal beneficiary of the new policy. Presumably this would ease some of the unofficial complaints about "discrimination" voiced by Venezuela after the Administration exempted overland Canadian crude from import controls. Action is expected before the first snow flies in New England.

•

Percentage depletion for oil and gas faces one more assault in the Senate this session. The attack will be launched when the Senate takes up highway financing legislation. As a substitute for boosting motor-fuel taxes, Sen. Joseph Clark (D., Pa.) will propose a change in the tax laws to provide the Treasury with extra revenue to meet the deficits in the highway trust fund. Clark's proposal includes reducing the 27.5% depletion rate to 20%.

•

A new maritime labor-management group is plugging to get 50% of U.S. oil imports hauled in American-flag Tankers. It is called the Joint Committee For American-Flag Tankers. National Maritime Union President Joseph Curran and Seafarers International Union President Paul Hall will serve as directors of the committee. Two additional directors will be named later from industry.

The group will plead that national defense needs require keeping the American tanker fleet as the cornerstone of the U.S. supply line. International oil companies will be the prime target of the committee. A spokesman says that if voluntary action is not obtained, it will push for action from the Administration or Congress. Executive secretary of the committee is Bushrod B. Howard, Jr.

•

Congress is adopting legislation to limit state taxation of interstate companies. The legislation will be very narrow, however; it won't reverse the Supreme Court decisions that started the fuss.

The idea is to bar a state from imposing income taxes on a company whose only activity inside the state is soliciting orders. If an interstate company maintains an office or inventory, however, the law will allow a state to tax the company's income.

The legislation is a compromise of the bills originally passed by the Senate and House. The new restriction would be permanent legislation, with no cutoff date. A special study of the whole state tax problem is to be made by the Senate Finance and House Judiciary Committees.

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An Announcement

Hughes Tool Company can now announce the successful development of the first practical and effective bearing seal for a rock bit that seals in a bearing lubricant and seals out drilling and formation fluids.

The results, from a long series of field and laboratory tests, have demonstrated that these lubricated sealed bearings will substantially increase bearing life and the drilling life of the bit, where bearing life has been the limiting factor.

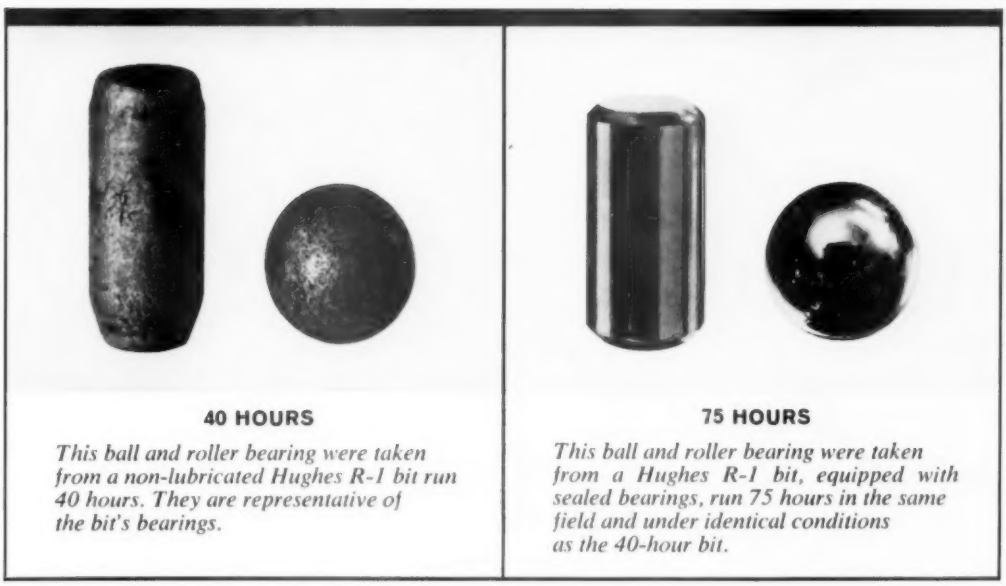
We now stand on the threshold of another series of Hughes developments that will lead to further important drilling economies.

The drilling industry can appreciate that the development of a successful bearing seal has been difficult and costly. There is still much to be learned before we can determine the full extent of its application to all sizes and types of bits.

In developing the sealed bearings, we have, so far, largely concentrated on one size and on one type of the R Series insert bits. We concentrated on insert bits because we felt that the industry had the most to gain from extending the life of these bits in the hole . . . and by having them available in quantities at the earliest possible date.

A target date of January 1 has been set to have the first production sealed-bearing bits available for distribution in the type RG-1J, 8¾″ size. With regard to the other sizes in the insert series, and as to other types and sizes, distribution will be at the earliest date they can be produced, consistent with the Hughes policy of thoroughly testing each design before it is released to the field.

FRED W. AYERS
Senior Vice President and General Manager
Hughes Tool Company



40 HOURS

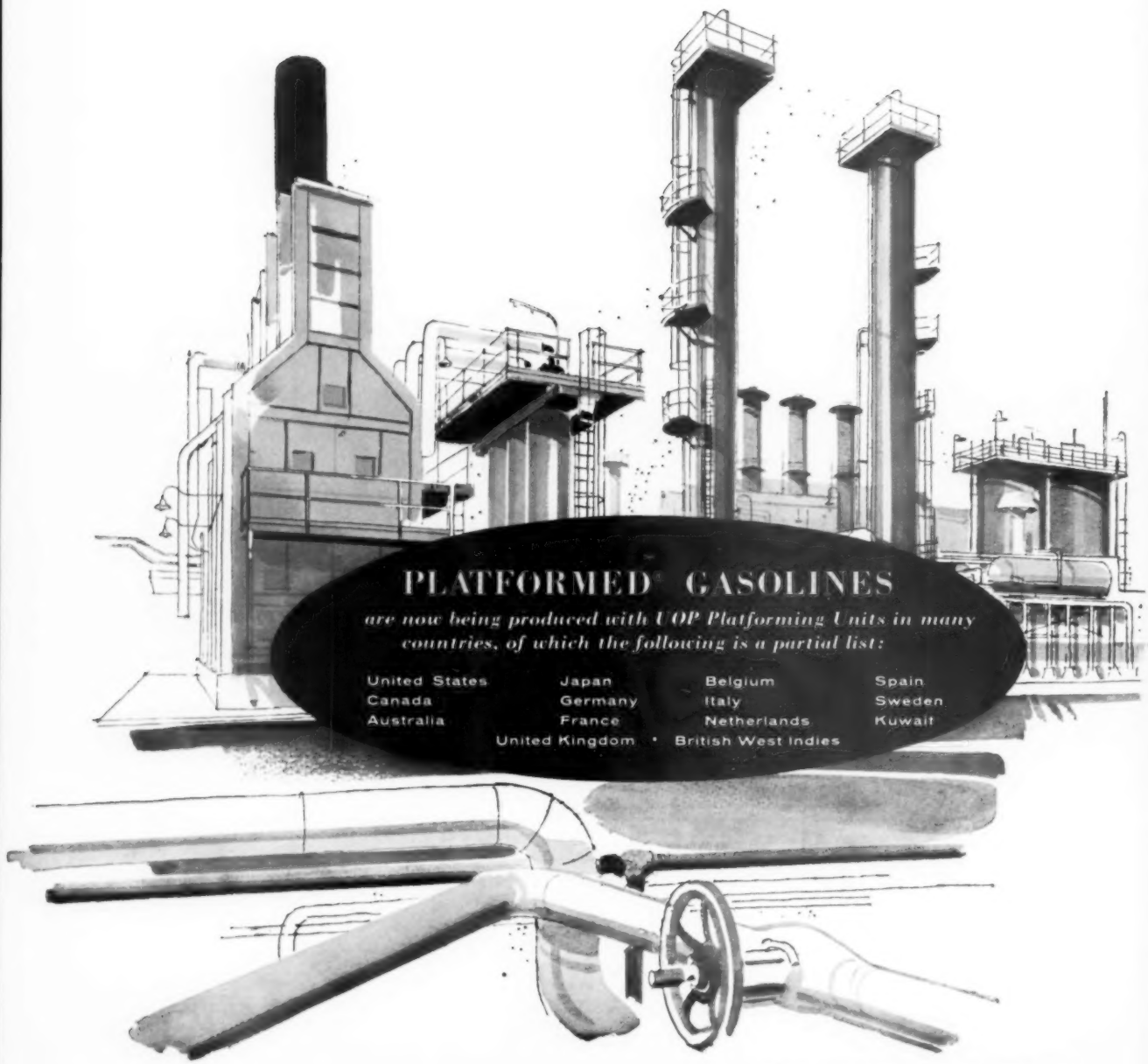
This ball and roller bearing were taken from a non-lubricated Hughes R-1 bit run 40 hours. They are representative of the bit's bearings.

75 HOURS

This ball and roller bearing were taken from a Hughes R-1 bit, equipped with sealed bearings, run 75 hours in the same field and under identical conditions as the 40-hour bit.

These photographs are unretouched. The irregular shadows you see in the bearings (above right) are the camera and lights reflected by the mirror-like surfaces of the bearings.

1949 a decade



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Far North: More Drilling This Winter

The already keen interest in Canada's Far North is being sharpened to a fine edge of anticipation, following the recent Yukon oil and gas show at Western Minerals No. 1 Chance.

Crews are, or soon will be, returning from the field after having spent the summer gathering information on the vast acreage now under exploration permits.

For some companies, this is the first effort they have made to explore the area. For others, this summer makes the second, third, or more, summer of looking.

But all companies seem to have found enough to whet their interest.

At least one other company, so far, has announced definite drilling plans for this winter.

Scurry-Rainbow Oil, Ltd., already is moving drilling equipment down the Mackenzie River, in the Northwest Territories, to initiate Canada's most northerly drilling venture.

The decision to drill follows extensive geological survey work during the past two summers.

Drilling is expected to start around the middle of December.

The test—Scurry-Rainbow No. 1 Grandview Hills—will be located in the Grandview Hills area downstream from Ft. Good Hope, 18 mi. west of the Mackenzie River.

It will be the first hole drilled in the Northwest Territories within the Arctic Circle.

The hole is intended as a basement test, and all porous zones will be cored and tested. Once the hole is bottomed, logging equipment will be flown in to evaluate the full section.

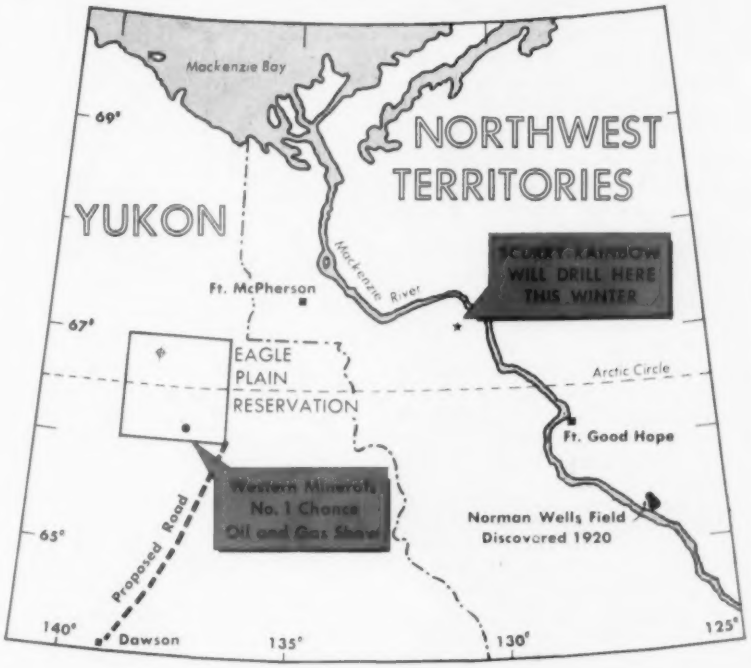
Peter Bawden Drilling, Ltd., will drill the test, using a rig with a depth capability of 8,000 ft. Standby equipment also will be maintained on the location.

Eskimos who have spent the past summer training in Alberta oil fields are expected to be used for part of the drilling crews.

More than 900 mi. of river transportation will be utilized in shipping the equipment from Alberta to the site. Barges capable of carrying more than 500 tons are being used.

Other companies geologically active in the area say they have not yet made any definite drilling plans for this winter.

If tentative plans made last fall are carried through, however, Amerada Petroleum Corp. may do some drilling this winter.



Amerada and Ohio Oil Co. last fall entered into an agreement with Canadian Husky and Canadian Superior Oil Co. of California, whereby they reimbursed Husky and Superior for work already done and assumed the balance of an exploratory program on 3.8-million acres.

Amerada is operator of the program, which covers acreage in the Eagle Plain and Ogilvie Basin areas of Yukon Territory and the Peel Plateau area of the Northwest Territories.

The two Canadian companies conducted extensive photo-geological studies and geological field mapping during the summers of 1957 and 1958.

Under the program, additional surface geological work was carried out this summer, with exploratory drilling tentatively scheduled for this winter.

Among other companies active in the area:

• Texaco Exploration Co. says that, although drilling plans are indefinite right now, the company "certainly feels optimistic" about the potential of its holdings.

Texaco holds about 545,000 acres in the Yukon and about 4.4-million acres in the Northwest Territories. Crews doing surface geological work have just returned.

• Western Decalta Petroleum, Ltd., through an agreement with Glacier Explorers, Ltd., is conducting geological and geophysical surveys in the Ft. Good Hope area.

The company says data are being collected with a view toward test drilling.

• Shell Oil Co. of Canada has conducted "considerable" surface work, but, a spokesman says, it has not yet formulated any plans for drilling this winter.

Shell, with holdings of between 14-million and 15-million acres in the Yukon and Northwest Territories, is believed to be the largest holder of acreage in the Far North.

Canadian oil men say Western Minerals is likely to hurry to finish drilling its No. 1 Chance to about 6,000 ft. in hopes of drilling a second test before deep winter in December forces a halt.

The first oil and gas for the Yukon was recently found at No. 1 Chance (PW—Aug.28'59,p24) at about 4,250-370 ft., in what is believed to be a Permo-Pennsylvanian formation.

High-pressure gas and frothy oil lead observers to believe a gas cap is present.

Initial muskeg freeze-up is expected shortly, and the company can then skid the rig to a new location, ob-

servers say. Western Minerals officials, however, have not revealed any plans for more drilling.

Western Minerals is serving as operator for several companies grouped together under the name of Peel Plateau Exploration Consolidated, Ltd. The group holds some 13,417 sq. mi. under reservations and permits in two major blocks—Eagle Plain in the Yukon, and Peel Plateau in the Northwest Territories.

Although operators in the Far North still face great obstacles, drilling costs are not expected to continue at present high levels.

An initial test in the Eagle Plain region would cost an estimated total of $2-million, says one observer, including transportation of equipment to the site.

But with costly transportation out of the way, he points out, the second test would cost only about half as much—a level comparable to some holes in the Foothills region of western Canada.

Transporation problems will be eased somewhat for the Yukon when the 200-mi. road from the Dawson area to the Eagle Plain Reservation is completed.

The Canadian Public Works Dept. is building the road from Flat Creek —about 15 mi. east of Dawson—to the southern edge of the reservation.

About 50 mi. of the road is expected to be usable by the end of this summer. Thus, operators will have 50 mi. over which they don't have to use the tractor-train method of transporting equipment.

Other problems confronting Far North operators include the terrain and the short working seasons.

A common procedure has been to move in supplies during the winter, spud in the spring, and drill in the summer and fall.

Special and costly preparations must be made for winter drilling.

In the southern portion of the Yukon, where there is much more muskeg than in the north, work would have to be conducted during freeze-up rather than in summer or fall.

While the permafrost of the Arctic or near-Arctic regions relieves operators of the muskeg menace of other Canadian areas, the terrain still is difficult.

The surface "never dries out," says an operator in the Eagle Plain area. Piles have to be put under the rig to keep it steady. These are usually 10-in. piles, set 20 ft. deep.

There is also the big hurdle of getting any oil or gas to market.

The findings of the No. 1 Chance have led to thoughts of major pipeline construction. Most suggestions so far envision a line running south about 450 mi. to tidewater at the Pacific Coast.

It is generally agreed, however, that a pipeline is a long way down the road. One observer says that, as a "reasonable but not conservative" estimate, a line could not be built before 1964 or 1965.

This would allow a year to plan a line and another year to build it. The rest of the time, he says, is the minimum that would be needed to prove sufficient reserves—providing they are found—to justify the construction.

A pipeline from the Yukon might cost in the neighborhood of $70-million, according to some estimates.

Geologically, the Far North still represents a massive puzzle to oil men.

Formations in northern Yukon are unnamed and unknown with the exception of a few representing the upper and middle Devonian.

A sandstone to limestone series is present in the apparently Permo-Pennsylvanian formation that has yielded oil and gas at the No. 1 Chance. The axis of the structure appeals to run north and south.

The current enthusiasm over this area began in 1954, although interest dates back to 1920, when Norman Wells field was discovered.

During World War II, Norman Wells oil was transported by pipeline to a refinery at Whitehorse. After the war, however, the refinery was dismantled, and the oil is used only locally now. A total of 64 wells were drilled in the field.

About 450 holes—most of them shallow—have been drilled in Yukon and the Northwest Territories since 1920, with the bulk of them coming since 1954.

Power Boosted in Jet Perforator

A new jet charge that gives a bigger punch in a small space is the key to the new slim-hole perforating tool recently announced by Jet Research Center, Inc.

The charge, which marks a new concept in design, was developed for JR's 1⅞-in. Sidewinder Jet Perforating Gun for use primarily in slim-hole and tubingless completions (PW—Jun.19'59,p50).

In the new charge, the primacord is placed along the side of the booster rather than behind it.

This makes it possible to add more than ¼ in. to the effective length of the charge, which results in more space for the explosive and a more powerful charge.

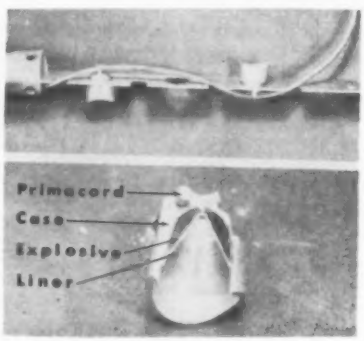
The new position of the primacord also gives enough dimensional tolerance to obtain optimum design conditions to get a very high degree of efficiency per unit weight of explosive, according to R. L. Robinson, Jet Research vice-president.

The new design will make it possible to use smaller guns and still maintain efficiency, Robinson says.

Effectiveness of the charge is further increased by other design changes.

The charges are positioned in 180-degree phasing by using a thin metal aligning strip, which fits into notches in the bull plug and firing head.

Holes in the strip are contoured to fit the charges at either four shots per foot or two shots per foot.



SIDE POSITION of primacord on charge allows more space for explosive. Top picture shows charges in place.

The strip is loaded into the carrier as charges are put in place and the primacord positioned against the charge.

As each charge is placed, the strip is moved up to the next charge location until all charges are loaded.

JR says a 1 7/8-in. OD by 1 9/16-in. ID mild steel tube is a satisfactory carrier for the two-shot-per-foot per gun. For the heavier loading of four shots per foot, JR says, a heat-treated alloy steel tube has been designed.

The carrier is notched on the outside opposite each charge position to reduce wall thickness, and thus increase effective penetration.

Standard length of the carrier is 10 ft., but carriers can be joined for longer assemblies. The carrier is retrievable.

$$* E = \tfrac{1}{2}(m_1 v_1^2 + m_2 v_2^2 + m_3 v_3^2) = \tfrac{1}{2} M_r v_r^2$$

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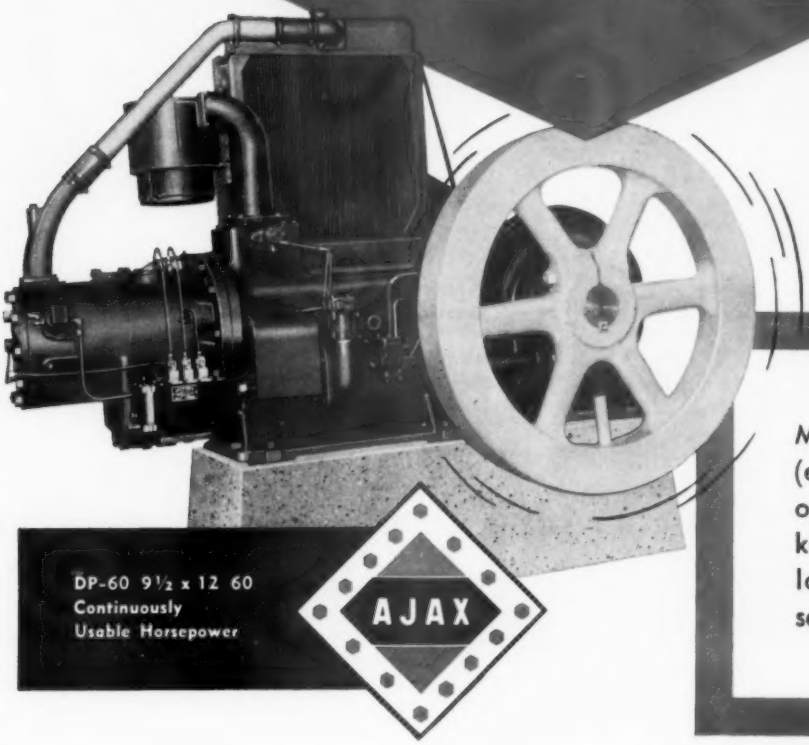

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Magnesium Helps Stimulate Oil Flow

Shiny magnesium pellets, scarcely larger than pin heads, are providing an answer to the knotty production problem of how to break down and create flow channels in dolomites and certain low-solubility limestones.

The inability of conventional oil well acids to do this job has long been recognized. But methods to overcome this obstacle have, for the most part, been impractical or limited in scope.

Now an effective means of treating such formations has been developed. It uses magnesium pellets to raise the temperature of inhibited hydrochloric acid.

This speeds the reaction time and increases formation solubility.

Most of the work done in recent applications has been by Dowell Division of Dow Chemical Co.

R. G. Martin of Dowell's Evansville district cites five main benefits: (1) increased solubility of the reservoir rock; (2) faster reaction time; (3) improved penetration of the acid; (4) reduced treating pressures; and (5) better clean-up characteristics.

Extensive use of the technique so far has been limited to two problem areas in Kentucky—Breathitt County and Green County.

Since late last year, 50 treatments have been completed in the Blue and Knox "sands" of Green County; and another 40 in the Corniferous pays of Breathitt County. All of the formations are dolomites or dolomitic limestones.

Breathitt and Green County pays are unusually difficult for conventional acid treatments because of lithologic and stratigraphic inconsistencies.

Insoluble materials are contained within the dolomite sections. And the thin pays are interbedded with siliceous limestone stringers.

Treating techniques have required that packers be set in open hole opposite limestone in order to acidize slower-reacting dolomite. Squeeze pressures required by this method have caused the acid to eat around the packers into the more soluble limestone before it reacted with the dolomite pay section.

The use of magnesium pellets has reduced the reaction time with the dolomite, allowing squeeze pressures to be reduced from about 1,400 psi. to 800 psi. during acidizing operation.

Production curves have shown marked improvement following treatments using magnesium pellets.

Records kept on a Breathitt County well showed an initial potential increase from 10 b/d after treatment to 70 b/d after treating with magnesium pellets.

After six months, the well still was producing 40 b/d, a much smaller drop than in many conventional acidizing jobs.

Dowell has found that a ratio of 1 lb. of magnesium per 5 gal. of acid gives best results in treating Kentucky dolomites.

Laboratory tests show that 1 lb. of magnesium reacts with hydrochloric acid to liberate 8,400 Btu. This heat is sufficient to raise the temperature of excess acid to 200F to 300F under downhole conditions.

Treatments in Breathitt and Green Counties usually call for injection of 2,000 to 6,000 gal. of acid.

The magnesium pellet technique involves both fracturing and acidizing operations.

The first step is to inject the pellets —suspended in a carrier agent of gelled water or lease oil—down the tubing or annulus. A ratio of 1 lb. of magnesium to 1 gal. of carrier is most common.

Sufficient pressure is applied to fracture the formation, forcing the pellets into the fissures created.

The pressure is let off, and 15% inhibited hydrochloric acid is injected.

The acid reacts violently with the magnesium upon contact, generating heat and hydrogen gas. The heat acts to speed the chemical reaction of the acid on the reservoir matrix, while generation of the gas in the confined space acts mechanically to increase penetration.

The ultimate hasn't yet been reached in either size or configuration of magnesium particles for oil well use.

Current research work is aimed at finding the optimum size for speedy reaction, and a configuration which will expose the greatest surface area per pound of metal used.

Dowell is experimenting with particle sizes up to 6 mesh, and is considering a configuration which is angular rather than spherical—possibly octagonal or hexagonal.

Pull Tubing Under High Pressure

Record high bottomhole pressures in a south Louisiana gas-condensate well proved no deterrent to a tubing-pulling operation conduction by Sinclair Oil & Gas Co.

The well, Sinclair's No. 2-A Peltier Farms, Lafourche Parish, was drilled to a total depth of 13,685 ft. The lower Miocene was perforated for production tests between 13,663-67 ft. Bottomhole pressure was 11,195 psi.

To bring in the well, 2⅞-in. tubing was set in a packer at 13,635 ft., and a concentric string of 1¼-in. tubing run to a point about 100 ft. above the packer. The well came in for a calculated flow of 1,384,000 cf/d plus 180 bbl. of condensate.

The smaller string sanded up, prompting Sinclair to pull the well. Otis Engineering Corp. was given the assignment.

First, wire line plugs were run in the tubing.

The bottom plug was set at 8,251 ft. with the remaining three plugs at 500 ft. intervals up the hole. A final plug was set in the tubing head, and the wellhead assembly was removed.

The tubing head was removed as the next step, and a 7-in. bore, Cameron Type F, 15,000-psi, blowout preventer was installed over the tubing.

The initial preventer carried blind rams to seal the hole completely. Two more preventers similar to the first—each equipped with 1¼-in. pipe rams —were installed.

A cross-over was installed between the upper two preventers to relieve the pressure to pits, and a valve was placed to aid in equalizing pressures.

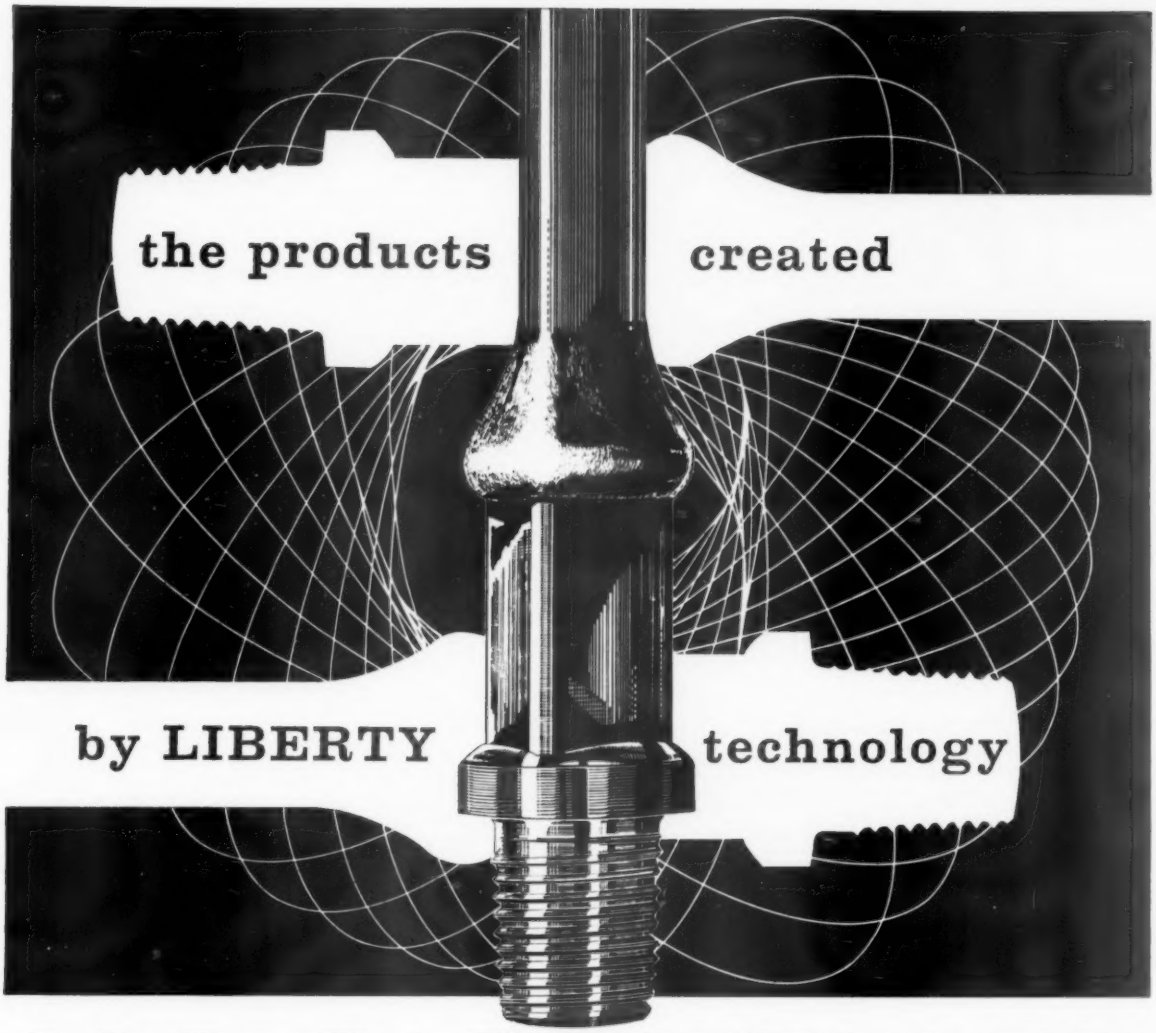
The cross-over was equipped with 15,000-psi., air-operated gate valves.

Pipe snubbers were installed on the rig floor to hold the tubing if a blowout occurred.

As stripping operations commenced, the upper two preventers were alternately opened to pass the joints as the pipe was pulled.

After the final wire-line plug had been retrieved, 21.5-lb. mud was pumped down the 2⅞-in. tubing to kill the well.

Currently, tests are being conducted through 2⅞-in. tubing set in packer above perforations at 13,080-94 ft. Pressures are considerably less than those encountered in the lower section.



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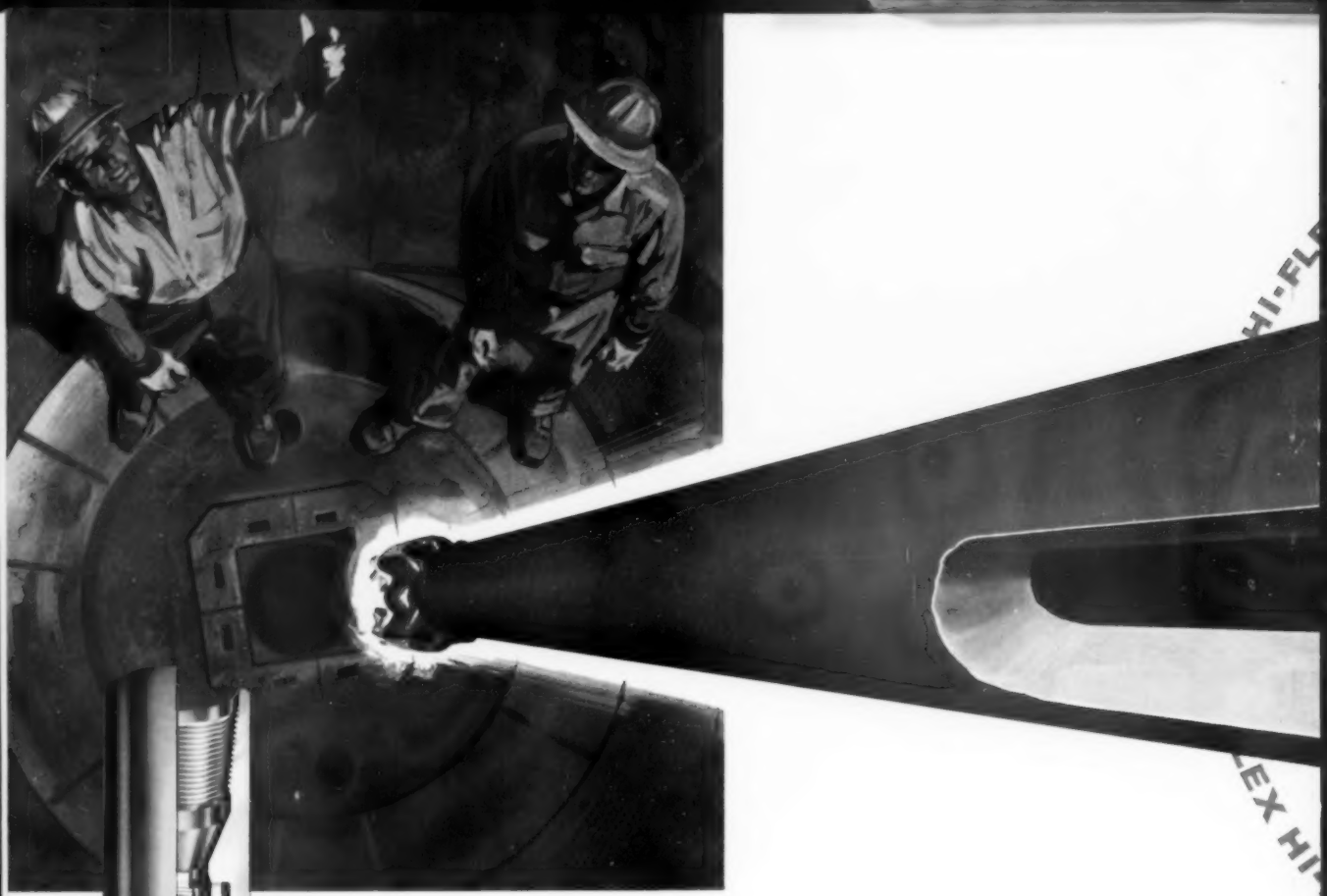

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What's New / IN EXPLORATION, DRILLING, PRODUCTION

Hughes Tool Announces New Sealed Bearing Bit

Hughes Tool Co. has disclosed the development of what it terms "the first practical and effective" bearing seal for a rock bit which seals in a bearing lubricant and seals out drilling and formation fluids.

A company statement says the results of a long series of field tests have demonstrated that these lubricated, sealed bearings will substantially increase bearing life—and the drilling life of the bit where bearing life has been the limiting factor.

In developing the sealed bearings, the main effort, so far, has been on one size and one type of the R series insert bits, says Hughes.

"We concentrated on insert bits because we feel that the industry has the most to gain from extending the life of these bits in the hole, and by having them available in quantities at the earliest possible date."

Jan. 1 has been set as the target date to have the first production of the sealed-bearing bits available for distribution in the type RG-1J, 8¾-in. size.

Distribution of other sizes in the insert series, and of other types and sizes, "will be at the earliest date they can be produced" following thorough testing.

•

A group of Wyoming oil men has recommended that the state grant ten-year oil leases, open to cross filing, on state-owned land.

Secretary of State Jack Gage says the group believes the long-term leases would solve the problem of drilling-time extensions, and that the cross filing would eliminate large lease holders not actively engaged in production or exploration.

Gage says only 208 of the 7,564 oil and gas leases issued by the state are now in production. He adds that the 2,213 requests last year for extension of drilling time were "more or less automatically approved" by the land board.

•

The Navajo Tribe has withdrawn its consent to the announced sale of San Juan County (N.M.) oil and gas leases scheduled for Sept. 15.

The 11,526 acres involved offset a recent helium discovery, and are believed to have some helium potential.

Paul Jones, chairman of the Navajo Tribal Council, says the Indians were disappointed over the recent helium gas sale contract between the Bureau of Mines and Pan American Petroleum Corp.

The contract calls for sale of raw, helium-bearing gas at .19¢ per Mcf.

•

A sale of oil and gas leases on 46,531 acres of Jicarilla Indian lands in Rio Arriba County, N.M., has been scheduled for Sept. 30.

The acreage being offered lies to the east of the Blanco gas trend. The bulk of it is in township 30n-1w; the rest in 30n-2w, 29n-1w, 29n-2w, 28n-1e, 28n-1w, and 27n-1e.

Giant Christmas Tree

This huge Cameron Iron Works Christmas tree was required by high pressures at Tidewater Oil Co. No. 2 Lacassane, 4 mi. east of Chalkley fie'd, Cameron Parish, La. On test, gas flowed at a rate of 2.6-million cf/d with 87.5 bbl. of 48.2-gravity condensate per million through ⅛-in. choke and perforations at 16,112-30 ft. in the Miocene. Bottomhole pressure was 14,813 psi. Special tubing in the well weighs 11.65 lb. per ft. High pressures collapsed the drill pipe and forced abandonment of Tidewater's first try, 360 ft. to the south.

The British Columbia government will hold a sale of oil and gas rights on Dec. 17.

Interested parties must provide the Dept. of Mines office in Victoria, B.C., with a legal discription of the land on or before Oct. 15,

All applications will be accepted on the assumption that the party requesting the sale is committed to bid.

•

Bidders paid a total bonus of $120,000 for approximately 40,000 acres of Montana state lands at the recent August sale.

Union Oil Co. of California was high bidder, offering $33.25 per acre for a 640-acre tract in Rosebud County, 2 mi. east of Sumatra field. This was the only tract offered in this area.

The majority of the state offering was in Valley County.

Other successful bidders included Pure Oil, Mobil Producing, Sun Oil, Hunt Oil, J. M. Huber Corp., Cabeen Exploration, and several individuals.

•

Two additional water injection plants to help fight the Wilmington (Calif.) field subsidence problem are expected to be completed within the next 30 days.

The plants—one on Terminal Island and one on the mainland—will have a combined water-injection capacity of 454,000 b/d. They will serve fault blocks 2 and 3, which cover the critical Naval Shipyard area.

Cost of the Island plant is estimated at $975,000, plus the cost of drilling 41 injection wells.

The cost of the mainland plant is estimated at $1,992,000, plus the cost of drilling 57 injection wells.

Eventually, the injection program will encompass the entire Wilmington field, an area of 20 sq. mi.

The subsidence has now been halted in 500 acres, and the rate of subsidence has been reduced in 700 acres.

•

The Texas Railroad Commission has approved a unitization-waterflood project for the SMS (Canyon sand) field, Kent County, estimated at boosting oil recovery by 19-million bbl.

Pan American Petroleum Corp. and

Congrats and $25 to Mr. D. J. SUGGS, Republic Natural Gas Co., Tipton Bldg., Pauls Valley, Okla., for this quip.

Joe Roughneck is top kick of the industry . . and plenty tough in his pipe demands.

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Sound, strong, lasting pipe you can depend upon: API casing, tubing and line pipe from Lone Star.

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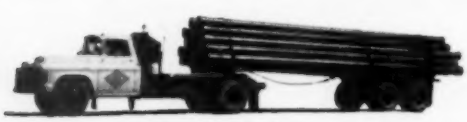

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other operators plan injection of fresh water beneath 5,850 acres. Cost of the project is estimated at $2.5-million (PW—Jul.3'59,p8).

The 79 wells in the field are producing an average of 26 b/d each.

•

Continental Oil Co. has asked the Texas Railroad Commission for authority to launch the first waterflood project in McCamey field, Upshur County.

Continental proposes to flood the Grayburg-San Andres dolomite under its A. S. Burleson lease, section 100, block R, T. C. Jones survey.

The project area contains 36 producing wells, making an average of 4.7 b/d.

•

Continental Oil Co. has purchased an undivided half-interest in the oil and gas properties of Hamilton Dome Oil.

Properties include 25 wells producing a total of 1,250 b/d in Hot Springs County, Wyo., 20 mi. north of Thermopolis.

Hamilton Dome is a wholly-owned subsidiary of Westates Petroleum Corp., of San Francisco.

•

Bandini Petroleum Co. shareholders have approved the acquisition of the assets of Long Shot Oil Co., Ltd., in exchange for Bandini common shares.

Producing properties acquired by Bandini include approximately 360 b/d of oil and 746,000 cf/d of gas from leases in Foster field and North Cowden field in West Texas, and Rhodesa field and Gretchen field in East Texas.

•

Diversa Inc., Dallas, has signed an agreement with National Drilling Co. whereby it will operate properties in four states for National.

Included in the agreement are 57 net wells and 700 b/d of production in South and West Texas, New Mexico, and Colorado.

•

Engineering

A portable electric starting unit for single-cylinder, engine-driven pumps has been developed by Wichita Engineering Co.

The electric motor on the unit is powered from a pickup truck's 6-volt or 12-volt battery, and is applied near

the carburetor for easy adjustment while cranking, says Wichita.

•

A new series of governors and switches in explosion-proof enclosures is now available from Synchro-Start Products, Inc.

The new GH-E series units are cable-driven in the same manner as the original GH series. The company says the explosion-proof enclosures meet all the specifications of Class 1, group D, explosion-proof equipment.

•

Drilling Highlights

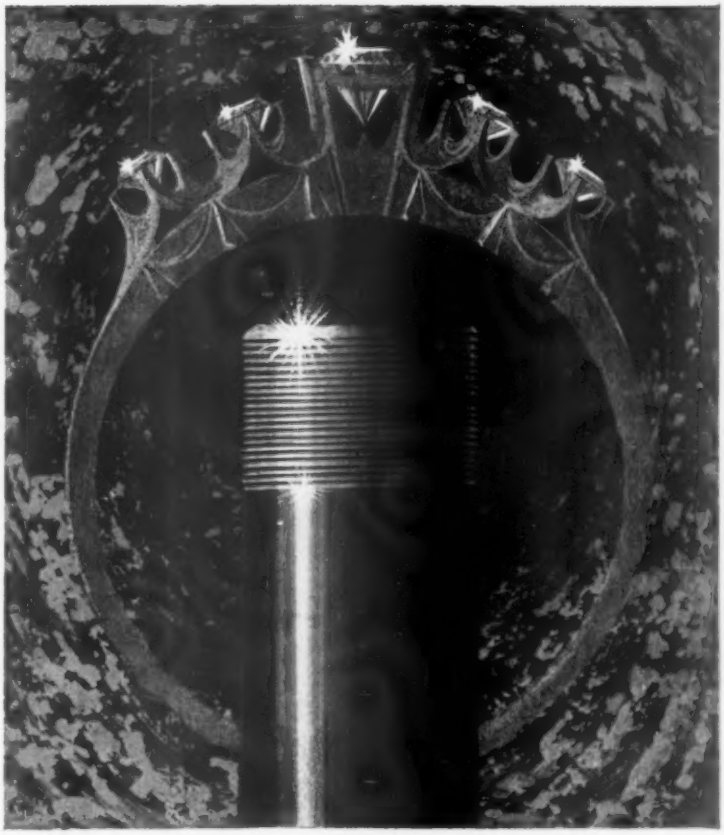
Oklahoma—Sinclair Oil & Gas Co. No. 1 Wacker, section 12-5n-4w, McClain County, flowed 106 b/d of 37.5-gravity oil through 10/64-in. choke and perforations at 8,800-32 ft. in the Hart (Pennsylvania) sand. The well is 2 mi. northwest of West Payne field.

In Oklahoma County, R. Stenzel No. 1 Bancroft, sections 19-14n-1e, recovered 4,050 ft. of oil in a 2-hour, 40-minute drillstem test at 5,732-57 ft. in the Second Wicox (Ordovician). The discovery is 2 mi. southeast of Coon Creek field.

Louisiana Offshore—Union Oil Co. of California and Pan American Petroleum Corp. No. 1 State Lease 3324 L. L. & E. Unit No. 1, Timbalier Bay, Lafourche Parish, flowed at the rate of 3.4-million cf/d of gas with 171 bbl. of 47.9-gravity condensate on a 4-hour drill stem test through 12/64-in. choke and perforations at 17,242-50 ft. in the upper Miocene. The discovery, the deepest so far in the Timbalier Bay field area, is 2 mi. east of Timbalier Bay field.

West Texas—Bill Roden No. 1 Girard Trust, section 35, block 1, H&GNRR survey, flowed 32-gravity oil at a rate of 168 b/d through 16/64-in. choke and perforations at 6,574-80 ft. and 6,586-96 ft. in the Strawn. The wildcat is 2¼ mi. north of Salt Creek field.

North Dakota—Amerada Petroleum Corp. No. 1 Warner, section 27-162n-80w, Bottineau County, recovered 230 ft. of highly gas-cut oil, 60 ft. of gas-cut mud with a trace of oil, 300 ft. of oil- and gas-cut mud estimated at 50% oil, and 60 ft. of gas- and mud-cut oil on 2-hour drillstem test at 3,493-503 ft. in the Midale. The wildcat is 1 mi. southwest of the South Westhope field and is separated from it by dry holes.



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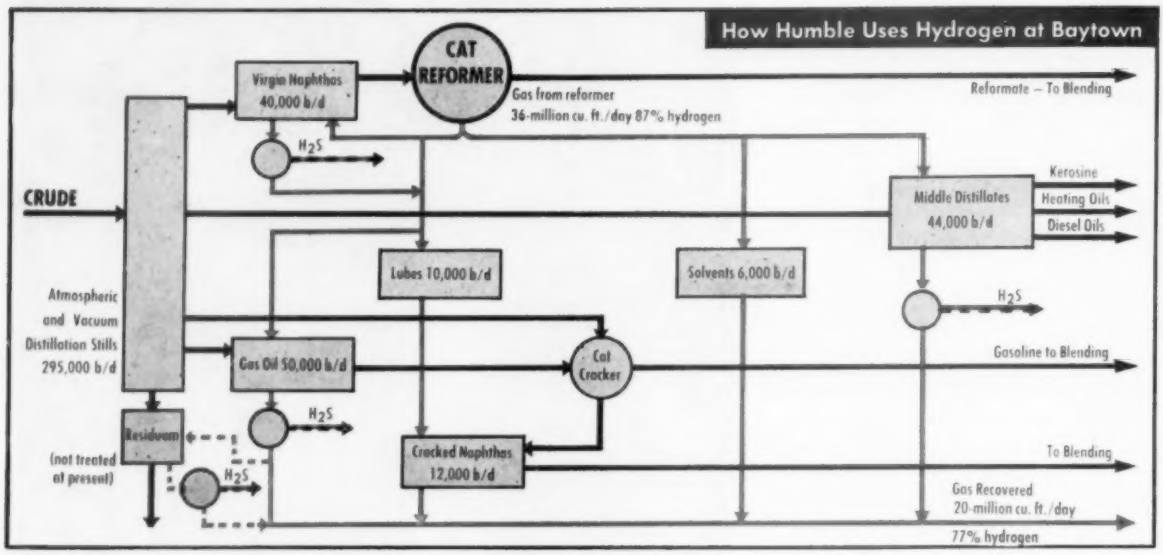


Refinery Use of Hydrogen Grows

An enormous and ever-increasing quantity of hydrogen is being used for the elimination of objectionable elements from petroleum products.

The result achieved by hydrogen treatment is essentially the elimination of impurities such as sulfur, nitrogen, chlorides, and metals.

With a lower sulfur content, the treated product is less corrosive, has a better odor, color, and stability. The other impurities would tend to poison the catalyst in subsequent catalytic treatments. The gum-forming propensity of the product is also substantially reduced.

The aromatic content is reduced in the distillates, which is beneficial for diesel fuel. On the other hand, there is an improvement in the octane value of certain naphthas used for gasoline blending purposes.

Today, 16% of all the crude processed in the U.S. subjected to hydrogen treatment at some point during its passage through refineries. This represents about 74% of the total hydrogen-treating capacity in the world, exclusive of the Iron Curtain countries.

This extensive use of hydrogen is economically possible due to the large quantities of hydrogen released as a byproduct of catalytic reforming operations.

At the Baytown (Tex.) refinery of Humble Oil & Refining Co., for instance, the total hydrogen consumption amounts to 17-million cu. ft. per day, yet it represents only about 51% of the hydrogen available.

When a refinery has cat-reforming units, there is usually more hydrogen available than is required for the most extensive applications of hydrogen treatment, except when one of the reformers is down. In such a case, according to Humble, it is best to maintain the normal charge rate through the hydrogen treatment units, and to accept temporarily a lesser degree of reaction.

One example of the present trend is the new unit for the hydrodesulfurization of distillates now being built by Shell Oil Co. at its Houston refinery. It will use Shell's trickle process.

The trickle process differs from conventional methods of catalytic hydrodesulfurization in that it treats the distillates in a partially liquid phase. It is said to be more economical from both an investment and an operation standpoint.

Shell says construction costs are 20% lower, and that 1¢ to 2¢ per bbl. can be saved because less hydrogen needs to be recycled.

Although 18 Shell trickle hydrodesulfurization plants have been built abroad since 1933, including three in Canada, this is only the second unit built in the U.S.—there is one at Wood River.

The new 30,000 b/d Deer Park (Houston) unit will be built by Fluor Corp., Ltd., at a cost of $2-million. According to Shell, about 50 cu. ft. of hydrogen are required per lb. of sulfur removed from the gas oil with this process.

With a temperature of 700F and a pressure of 750 psi., up to 90% of the sulfur can be removed from the stream.

A conventional nickel-cobalt-molybdenum catalyst, on an alumina base, will be used.

Another sign of the trend is the Unifining unit just put on stream at Warren, Pa., by United Refining Co. to treat with hydrogen virgin naphthas used as feedstock for cat-reforming (picture, page 39).

The 15,000 b/d unit was installed by Blaw-Knox Co., under license from Universal Oil Products Co. and Universal Oil Co. of California.

A growing variety of refinery products are now being subjected to hydrogen treatment.

In many cases, catalytic hydrogenation makes it possible to eliminate some steps from more conventional purification processes. For example, the redistillation which is a part of many of these processes, is not required with hydrogen treatment. A caustic washing is usually all that is needed to finish the hydrogen-treated product.

Some refineries are using hydrogen treatment on a broad scale. They apply it to such products as:

- The feedstock of straight-run naphthas going to the platinum cat-reforming unit. This is where the most

Instrument Monitors Corrosion Rates While Equipment Stays on Line

Fastest Known Corrosion Rate Measurement

The *Corrosometer* is its name. It proves the effectiveness of Nalco refinery stream corrosion inhibitors . . . in a hurry. It is the fastest known method of determining corrosion rates in operating equipment; manufactured by Crest Instrument Co. under license from Standard Oil Company (Indiana), and distributed worldwide, by Nalco.

Corrosometer readings are taken quickly and accurately, indoors or out. Instrument leads are attached to probes mounted in corrosion trouble spots. One instrument serves virtually any number of probes.

Coupons, Inspections are Slower

Determining corrosion rates by loss-in-weight methods, using coupons inserted in lines, is a much slower process. Valuable in determining average corrosion rates, it lacks the speed that enables the Corrosometer to reveal immediately any change in corrosion rate caused by process variations. Nalco Representatives, as well as Nalco Corrosion Inhibitor customers and prospects, welcome the speed with which the Corrosometer delivers accurate corrosion rate readings as a real contribution to time and money-saving establishment of good corrosion control practices.

Corrosometer Can Show Day-to-Day Corrosion Rates in System

Readings taken with the Corrosometer show the corrosion rate in the system for a predetermined interval of time. The interval may be as long as desired—or as short as a day or less. Thus checks of Nalco treatment effectiveness, as well as prompt detection of unexpected increases in corrosivity, are practical and accurate with the Corrosometer.

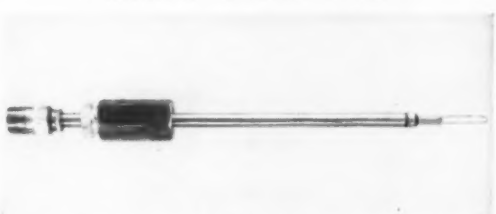
How Corrosometer Works . . .

Utilizing the Kelvin electrical bridge circuit, the Corrosometer compares resistances of two similar probes: one protected from corrosion, the other directly in contact with the liquid or gas in the equipment under test. Corrosion of the unprotected probe increases its electrical resistance, and the difference between probe resistances is directly convertible to corrosion-rate readings of high accuracy.

Retractable probes, for easy replacement without shutting down the system, and probes for high temperature and high pressure systems make the Corrosometer a valuable tool in checking Nalco Results in all types of corrosion-prone equipment.

Your Nalco Representative can give you full details on both the Corrosometer and Nalco corrosion inhibitors. Call him today — or write for descriptive literature.

Refinery Corrosion Probe



Retractable probe can be installed through a gate valve; replaced quickly without taking equipment off line.

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You, Mr. Independent Oil Marketer, are in the best position to offer complete service to contractors for the lubrication of their off-highway equipment.

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GENERAL WHOLESALE DEPARTMENT

SUN OIL COMPANY

PHILADELPHIA 3, PA.

IN CANADA: SUN OIL COMPANY LIMITED, *Toronto and Montreal*

extensive application of hydrogen treatment is done today.

- The gasoil feedstock from the vacuum distillation still to the cat-cracker, including the stream of heavy propane-butane deasphalted gasoil.
- The straight-run distillates from the atmospheric crude still, such as kerosine, heating oils, and diesel oils, sometimes after a solvent extraction to remove the aromatics.
- The high-boiling fractions of cracked distillates and heating oils.
- High grade solvents, produced by distillation or by solvent extraction, to improve their odor.
- Lubricating oils, to improve their color and color stability.
- Asphalt and heavy residue, to produce additional distillates, and to improve the quality of the residual fuel oil.

As an example, at Baytown, Humble conducts hydrogen treatment on all of these products except asphalt and residuum. Its hydrogen-treating capacity is about 55% of its total crude charge.

A judicious arrangement of parallel and series streams of hydrogen, with removal of the hydrogen sulfide by amine scrubbing at several points in the circuit, makes it possible to treat all these products with great effectiveness (diagram, page 36).

Additional advantages of hydrodesulfurization are the recovery of a substantial quantity of sulfur, a convenient means of avoiding air pollution, and elimination of the troublesome disposal of acid sludges.

At Baytown, 150 tons per day of hydrogen sulfide are recovered, which corresponds to slightly less than 150 tons of sulfur.

NEW UNIFINER will treat naphthas at United Refining Co.'s Warren (Pa.) plant.

Additives Stop Cold Stalling

Tests prove conclusively that additives should be used in gasolines to control icing, in marketing areas where weather conditions warrant it, according to California Research Corp. and Standard Oil Co. of California.

R. E. Steinke and H. W. Sigworth, of these companies, gave their conclusion to the recent West Coast meeting of the Society of Automotive Engineers, in Vancouver, B.C.

Formation of ice on the throttle plate of carburetors causes cars to stall frequently, especially during stop-and-go driving in cities.

It is an elusive condition, difficult to detect because it lasts only a few minutes after a cold start.

Two types of additives were used for the tests: surfactants and freezing-point depressors.

The base fuel was a normal production gasoline of 99 octane rating (Research method), with a Reid vapor pressure of 12.3 psi., an initial boiling point of 82F, 50% distillation point of 206F, and end point of 348F.

Two different surfactants, at concentrations of 100 parts per million and 280 ppm., respectively, and one freezing-point depressant at a concentration of 1,000 ppm., were tested, at various temperatures and humidities.

The first tests were run in the laboratory.

A six-cylinder car was put on a test stand in a huge refrigerator. It was run for 30 seconds at fast idling speed (1,500 rpm. and no load) to build up ice deposits, then returned to a more normal speed (500 rpm.) for 15 seconds, to observe stalling conditions. This cycle was repeated several times. A glass viewing section had been installed just above the carburetor throttle plate.

Viewing glasses showed conclusively the freezing and refreezing of icy slush on the carburetor throttle plate, and the choking of the air intake, causing the engine to stall.

But the results of addition of surfactants or freezing-point depressors to the gasoline were not reproducible; there was a carryover from run to run, and a new carburetor had to be installed after each series of runs.

Then field tests were run during the winters of 1958 and 1959, with the help of 120 private motorists, in the Vancouver (B.C) area of Canada, where weather conditions are conducive to icing.

Cars used in these tests included the majority of American makes as well as seven small foreign cars.

Drivers were requested to establish a uniform pattern of stopping at stop signs, and to record all engine stalls occurring during the first ten minutes of operation after a cold start.

During these two winters of tests, 44,000 data points were collected and put on computer cards; a Datatron computer was used to correlate stalling with relative humidity and ambient temperature, for various types of cars and several types of fuels.

The number of cars stalling in critical icing weather was much higher than expected. On the base fuel, with no additives, 43% of the cars stalled once or more during warm-up periods. The most critical weather appeared to be a relatively mild temperature of 40F with 100% relative humidity.

The road tests indicated that the use of additives will reduce stalling by over 50%.

There was a big difference between makes of cars, the small economy car showing a much greater tendency to stall. Cars equipped with automatic chokes stalled less than those with manual chokes.

The type of carburetor may also have some bearing on stalling tendency. In the tests, engines with four-barrel carburetors stalled only about half as often as those with one- and two-barrel carburetors. These data are not conclusive, however, because the cars equipped with four-barrel carburetors were also equipped with automatic chokes.

New Kidde carbon dioxide portables awarded highest U.L. rating!

Belleville, N. J. — A spokesman for Walter Kidde & Company announced here today that four of the company's new portable fire extinguishers have been awarded the Underwriters' Laboratories highest ratings for their respective capacities. To those interested in fire safety, this means that, pound for pound, these new Kidde units have more fire-killing power than any other carbon dioxide extinguishers on the market today.

Available in 15 and 20 pound capacities, in either squeeze valve or trigger models, these power-packed Kidde units feature new hose and discharge horn assemblies, which are responsible for their extra fire fighting ability. The new assembly is supplied also with Kidde's 10 pound carbon dioxide portable which has a U. L. rating not exceeded by any other extinguisher of its capacity. This hose-horn combination is also being offered as a replacement unit for existing 10, 15 and 20 pound carbon dioxide units, and when attached will upgrade their effectiveness equal to the new ratings.

For more information on these top-rated Kidde carbon dioxide portables write Kidde today.

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What's New
IN PROCESSING

Liquids recovered from Alberta's natural gas fields will be processed at a $4-million refinery planned by Canadian Oil Companies, Ltd.

The new plant will be located about 25 mi. south of Red Deer, near Canadian Oil's Innisfail discovery. Canadian Bechtel, Ltd., will start construction this month with completion scheduled for late fall of next year.

•

A 1,500-2,000 b/d sulfuric acid alkylation unit with an L.P.G. bonus is planned for Great Northern Oil Co.'s Pine Bend (Minn.) refinery.

Construction will get under way in October, with completion set for mid-1960. The Refinery Engineering Co., a division of Vitro Corp. of America, will handle process and mechanical design, in addition to all engineering and construction.

•

Startup of a 4,070 b/d combination Hydrobon-Platforming unit has boosted capacity at Kuwait Oil Co.'s Mina al Ahmadi refinery to 190,000 b/d.

The Platforming section produces a high-octane motor fuel blending component from naphtha feed stock treated by the Hydrobon installation.

Procon (Great Britain) supervised engineering and construction of the unit, designed and licensed by Universal Oil Products Co.

•

Derby Refining Co. has announced completion of a $1.4-million hydrofluoric acid alkylation unit at its Wichita (Kan.) plant.

Alkylate produced will be used as a blending stock for the company's regular and premium gasolines.

•

Switching to petrochemicals as a source for raw materials has enabled Germany's Chemische Werke Huels to cut production costs.

Formerly, the company produced intermediates, alcohols, acids, and solvents from a process based on acetylene, made by the electric arc process chiefly from coal gases.

A new process, independent of acetylene, is now being used. As a result, more than half of the raw materials used last year came from petroleum and natural gas.

another
TRETOLITE SERVICE
report

BEFORE KONTOL! *Here's what a tube bundle looked like in one of the heat exchangers at an Ohio refinery — after just 94 days of service. A* KONTOL *Protection Program has since trebled tube life, upped heat exchange efficiency by more than six million BTU's per hour!*

KONTOL* CORROSION INHIBITOR TRIPLES TUBE-BUNDLE LIFE AT OHIO REFINERY

Also saves $96.00 per day on increased BTU's . . . The effectiveness of KONTOL* protection against corrosion and fouling in tube bundles was dramatically demonstrated in the heat exchange equipment of the crude unit at a large refinery in Ohio.

Since the inauguration of a regular KONTOL Corrosion Inhibitor program, the tube bundle life period has been increased by approximately 3 times the bundle life prior to the use of KONTOL.

KONTOL'S DETERGENT ACTION ADDS DOLLAR-BONUS TO OPERATION

The detergent action of KONTOL Corrosion Inhibitor provided a *plus* benefit for the refinery. A cleaner operation has resulted in the gain of an additional 6,000,000 BTU's per hour—or a savings of about $96.00 per day.

THERE'S A KONTOL PRODUCT FOR YOUR CORROSION PROBLEM

The KONTOL product used in this case was based on a careful study of the refinery's specific needs. The Tretolite Company developed and pioneered the application of organic corrosion inhibitors throughout the petroleum industry. No other organization has Tretolite's wealth of experience and know-how in the manufacture and use of these products. This background (Tretolite corrosion engineers, laboratory and research facilities) is always available to you—to help solve your particular corrosion problems. A call will bring you this service—at no obligation.

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PERU: International Gas Lift Company, Apartado 71, Talara
TRINIDAD: Neal and Massy, Ltd., Port of Spain, P.O. Box 544, San Fernando

Paria Operators 'Not Discouraged'

A five-company U.S. group plans at least six more wildcats in Venezuela's Gulf of Paria while starting development of its sole oil discovery to date (map).

Paria Operations, Inc., now has its first development well under way (PW—Aug.28'59,p41). The Posa 112A-2 is being drilled by Loffland Bros. directionally from a big, new multiwell platform set up at the discovery site. It's a two-deck steel unit built by Brown & Root Marine Operators, of Houston, and towed to the Paria site. Its upper deck, 110 ft. by 120 ft., is 55 ft. above water surface. Water depth at the site is 78 ft.

The offshore discovery was established in April, 1958, by the initial wildcat drilled for Paria Operations, operator on 152,000 acres for which the group paid $102-million in cash bonuses in 1957. Participants are Texaco, Continental Oil, and Ohio Oil, 25% each; Cities Service, 16⅔%; and Richfield, 8⅓%.

Though four wildcats drilled since then have all been abandoned on as many different structures, participants regard the results as "disappointing—but not discouraging."

There's still a question whether oil will be found on the flanks or tops of the structures, and one dry hole on each doesn't necessarily condemn it. As one official puts it, "There are as many theories as geologists."

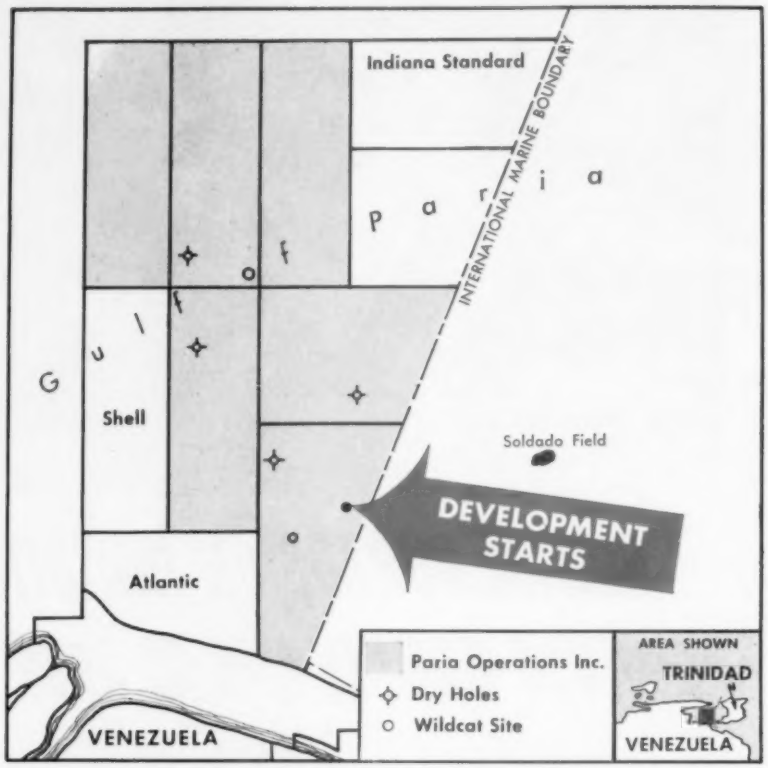
Following completion of a sixth wildcat, currently being drilled from a fixed platform, the group plans to "play by ear" on the next half-dozen tests.

A second contractor—Zapata Offshore Co.—is being brought in for a new wildcatting phase, involving "over-the-side" drilling from a floating vessel instead of from fixed platforms.

"Zapata's "Nola" is due to arrive in the gulf at the end of September. The floating tender, will be used primarily —but not exclusively—for the further wildcatting. This method of offshore drilling is already being used on the Trinidad side of the Gulf of Paria, by a Standard of California subsidiary.

Up to this point, the group's wildcats have been drilled from permanent platforms in water depths ranging from 64 to 120 ft.

Crews are quartered on a tender, and the operations are supplied by sea from the U.S. or from Puerto La Cruz, 300 mi. away (PW—Jan.31'58, p16).



The Posa 112-1 discovery well is 1 mi. west of the international marine boundary. Though originally planned for 12,000 ft., its total depth was considerably less.

The Posa 115A wildcat currently being drilled is 2½ mi. southwest. The four preceding tests were all drilled north of the discovery: Posa 103A-1 was abandoned at 12,026 ft. last October, 4 mi. northwest. Posa 36A-1—which had some minor oil shows—was abandoned 12 mi. northwest earlier this year, at a depth below 11,400 ft. Posa 65A-1 was drilled 9 mi. northwest. And the latest, Posa 100A-1, was abandoned in July at 7,291 ft., 5 mi. north.

"Several" development wells are slated this year from the fixed platform, which will permit drilling 27 holes directionally.

There's no estimate available yet on how many holes actually will be drilled from the platform. The total will depend on whether any blank spots show up in the reservoir.

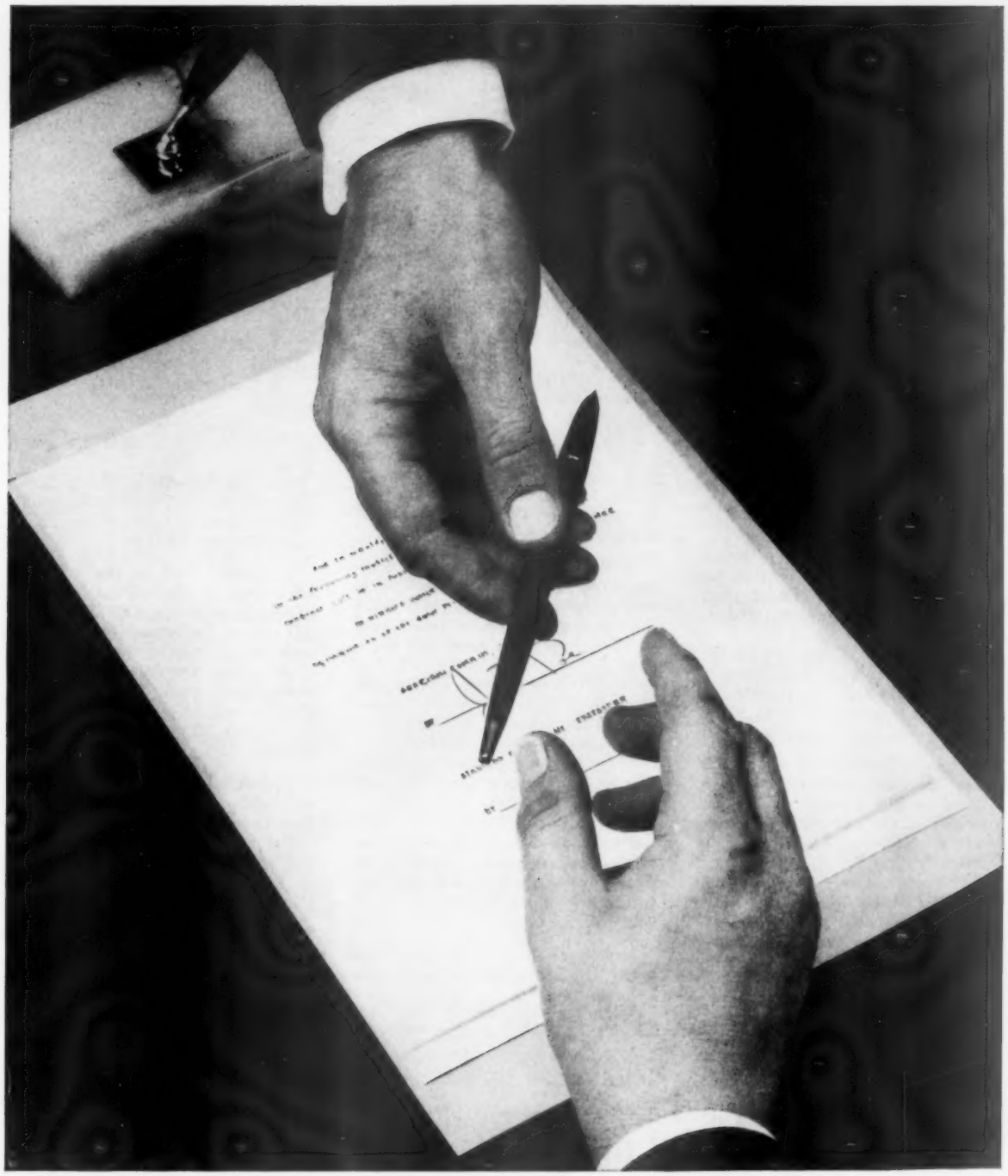
The discovery well is expected to make 1,500 b/d on sustained production. When dually completed last year, it flowed 20- to 22-gravity oil at test rates up to 1,980 b/d from Miocene sands in intervals at 4,026-125 ft. and 4,182-226 ft.

The location is about 10 mi. northeast of Creole Petroleum's 21-gravity Pedernales field in Venezuela, and about 9½ mi. southwest of the small offshore Soldado field on the Trinidad side of the gulf. Soldado, like the Paria Operations discovery, also produces from the Miocene, at depths around 4,500 ft. It is now being developed by a company owned jointly by Texaco, Shell, and British Petroleum.

Indiana Standard is the only other company at present considering wildcat plans for its acreage in the Venezuelan waters of the Paria gulf (PW—Jul.31'59,p68).

As of last week, cost estimates solicited from five or six contractors were under consideration, but no definite decision on drilling had yet been made, a company spokesman said.

Indiana paid nearly $4.7-million for the 22,250-acre tract in 1957. Shell and Atlantic have no present plans to drill their offshore blocks.



"Respect for contracts is a fundamental element of civilized life. Unless such respect is firmly established as a moral and legal rule, the economic stability and peaceful progress of the entire free world are inevitably hampered."

— M. J. Rathbone, President

ESSO

Standard Oil Company (New Jersey)

and affiliated companies

Oil Bids Pile Up for Spain's Sahara

Spain found the bidding hottest on its Sahara acreage last week as it opened 226 applications for oil rights under its new 50-50 profit-sharing law.

Terms of the bids are not being disclosed. But heavy overlapping in the Spanish Sahara was clearly evident, though some confusion was stirred by an official list that proved partially inaccurate.

A government bulletin dated Aug. 21, and already being revised, lists 155 bids for the Sahara, 69 for mainland Spain, and two for Spanish Guinea. So far as could be determined immediately, the errors mostly involved designation of the particular Sahara blocks requested by various companies. There was also a possibility, however, that additional bidders had inadvertently been left off the list.

Sixteen U. S. companies appear among the bidders so far. Jersey Standard is the only one of these that did not show up in the Sahara in the government listing.

Other bidders include established Spanish companies (both government and private), one private Italian company, and a couple of firms whose ownership was not immediately clear.

Indiana Standard and a Richfield-Cities Service combination both teamed up with Spanish government agencies in the competitive Sahara bidding. No other U. S. firms are listed as bidding for any acreage with government partners, though Gulf Oil took on a private Spanish firm for a joint bid in Guinea.

Indiana's Pan American International filed jointly with the Instituto Nacional de Industria (INI) for eight Sahara blocks: 4, 5, 6, 13, 40, 43, 47, and 52. This list is confirmed by the U. S. company.

Richfield and Cities Service bid on eight blocks jointly with CAMPSA, the government marketing monopoly, and the Banco Espanol de Credito.

The other 12 U. S. bidders in the Sahara filed for acreage on their own.

Sun Oil and Champlin Oil & Refining filed jointly, for six blocks. Atlantic Refining and Tidewater each applied for 16 blocks, the maximum permissible. Superior and Caltex each filed for 14, followed by Gulf Oil with 13, Continental Oil with 8, Union Oil of California with 6, Phillips Petroleum with 5, Sinclair with 5 (covering blocks 22, 30, 31, 39, and 40, and not those shown in the initial list), and Ohio Oil with 2, on blocks 8 and 15 (as now verified).

French as well as Italian and Spanish interests apparently are represented in the other Sahara bids.

French government interest is reportedly represented in a company called S. A. de Estudios y Explotaciones Petroliferas, which filed for 8 blocks jointly with INI.

INI also filed for another 8 blocks on its own.

Ausonia Mineraria, a company of the privately-owned Edison industrial complex of Italy, filed for 3 blocks.

Applications for 12 blocks were filed solo by CEPSA, an integrated private Spanish company.

Two additional bidders were listed as: Satexsa Investigaciones y Explotaciones Petroliferas (2 blocks); and Investigaciones Petroliferas S. A. (3 blocks).

With nearly half the Sahara acreage ruled out by unfavorable geological factors, all 155 bids were heavily concentrated on only about 30 blocks out of a total 108 available.

According to the initial announcement, the bids cover blocks extending through the northeast part of the territory, largely along the Atlantic coast and the Morocco border. The most heavily overlapped is block 40, with 13 bids shown in the initial list.

Basement-rock outcrops in the south and southeast rule out some 40% of the territory as possibly petroliferous. Although some cover is present in this area, it is underlain by shallow crystalline rocks.

Mainland Spain drew bids from seven U. S. companies and three Spanish.

With the exception of Tidewater, which applied for acreage in the southwestern provinces of Huelva and Sevilla, all companies requested tracts in the northern provinces:

- **Jersey's Esso Iberia:** 10 tracts, totaling 392,689 hectares.
- **Phillips:** 13 tracts, 455,170 hectares.
- **Caltex** (California Oil Co. of Spain and Texaco Spain): 5 tracts, 119,957 hectares.
- **Gulf Oil:** 7 tracts, 140,847 hectares.
- **Tidewater:** 4 tracts, 76,518 hectares.
- **Cities Service and Richfield:** 3 tracts, 100,448 hectares.
- **Campsa:** 11 tracts, 280,743 hectares.
- **Ciepsa,** (exploration subsidiary of CEPSA): 4 tracts, 105,484 hectares.
- **Cia Petrolifera Iberica S. A.,** a private company that already holds some exploration rights in Spain: 12 tracts, 385,438 hectares.

In Spanish Guinea, the only bids were filed by Gulf Oil, jointly with the privately-owned CEPSA.

They bid for blocks 1 and 2 in the southwest corner of the African territory, along the Atlantic coast and immediately north of oil-producing French Gabon. There were no takers for another 34 blocks available in the territory.

Counteroffers and objections—or even entirely new bids—can now be filed for a 30-day period.

Companies with overlapping Sahara bids will be called in for an open joint conference on the terms of their offers, after in which they may submit new sealed proposals.

According to Spain's oil law, Spanish participation and any offers beyond the minimum requirements of the 50-50 law will be among the determining factors in making awards on overlapped areas.

BP Sighs, Hope Dies, Soil Flies

Shovels and rakes have replaced wrenches and tongs at the Naxxar drillsite in Malta, following British Petroleum's announcement that it would relinquish its exploration license on the tiny island.

Under a soil-conservation agreement with the Maltese government, every spadeful of soil removed during drilling operations has been stored, and is now being replaced.

Almost $2-million has been spent for exploration on the island, including the 10,000-ft. test. The company says the information obtained does not warrant further exploration.

Surface casing was left in the hole as a further conservation measure, to prevent contamination of the water supply of the 95-sq. mi. island.

What's New / AROUND THE WORLD

West German Firm To Explore in Lebanon

LEBANON—After only a few weeks of seismic work, Gewerkschaft Elwerath, West German producer, has decided to take up 50% interest in an exploration venture on a 75-year concession held by Cie. Libanaise des Petroles, the president of the Lebanese company told PETROLEUM WEEK (PW—Aug.7'59,p48).

Elwerath, a company in which Jersey Standard and Shell hold minority interests, will hold 40,000 shares in CLP. Total shares will now be increased to 80,000, with 11,000 to be issued free to the government, giving it 13.75% participation.

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BURMA—A joint Japanese-Burmese oil venture is reported under study by the government. Japanese interests from Osaka (not Maruzen Oil) are said to be offering equipment and technical assistance. The British-owned Burmah Oil Co. is presently the only company with exploration and production interests in Burma.

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VENEZUELA—Socony will boost ultimate recovery from its Mata field in eastern Venezuela by 138-million bbl. on completion next year of a projected $3-million plant that will reinject 150-million cu. ft. of gas daily into three reservoirs in the field.

Texaco is also building two plants in the Mata area with combined reinjection capacity of 23-million cu. ft. daily.

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EGYPT—One of four drilling rigs Cairo ordered from the Soviet Union will be an offshore unit for drilling to 16,000 ft. The government has also ordered two rigs from West Germany to expand its exploration program.

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MEXICO — Basic petrochemical materials will be controlled by a new state agency—not Petroleos Mexicanos.

Private companies interested in manufacture of secondary products are invited to discuss proposals directly with the new National Patrimony cabinet post, under which the new agency will be set up following a special regulation signed last week.

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ARGENTINA—A contract has now been formally awarded to Carl M. Loeb, Rhoades & Co. to build the last of three projected northern pipelines: a 12¾-in. product line running 680 mi. from Mendoza to Buenos Aires (PW—Jun.12'59,p48). The project will be started in October, 1960. The Fish Engineering group is already building the other two northern lines.

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ARGENTINA—Both drilling and payments on three-year Comodoro Rivadavia contracts with two U.S. firms will be stretched over four years at the request of the financially-strapped Argentine oil agency. The modification was agreed to by Southeastern Drilling Co. on its 1,000-well contract, and Kerr-McGee Oil Industries on its 500-well contract.

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DOMINICAN REPUBLIC—Petrolera Dominicana, U.S. backed company, will continue exploration in the Azua and Enriquillo valleys. One dry hole was drilled for the Dominican company last year by H. S. Cole, Jr., & Son, Houston.

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QATAR—Royal Dutch Shell is preparing to resume Persian Gulf wildcatting on arrival at the end of October of a new offshore platform that will permit drilling several tests from one site. The "Seashell," now leaving Holland on a 6,400-mi. tow, replaces the platform destroyed two years ago by freak swells (PW—Feb.1'57,p16).

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BOLIVIA—The first private Brazilian capital is now set to move into Bolivian oil exploration in the "Area B" treaty acreage in the southeast.

Bolivia has granted the first 40-year concession: A 571,840-acre tract went to Brabol (Brasil Bolivia de Petroleo), formed by the Uniao refining interests of Sao Paulo. Three additional "approved" Brazilian groups are expected to get grants shortly.

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Iran Rights Forfeit?

TEHERAN—Iran has declared forfeit the $1½-million guarantee of Sapphire Petroleum for failure to live up to contract obligations.

It is not known whether the case will be taken to arbitration by the Canadian firm, which had been granted oil rights at the Gulf of Oman, near the Consortium area, under a joint venture with National Iranian Oil Co.

Wildcats in the News

IRAN — The Consortium's first coastal wildcat, at Kuh-I-Binak, has had a show of 24-gravity oil at 10,817 ft. Several minor shows encountered included 27-gravity oil at 5,000 ft.

TURKEY—Socony is shifting its sights from central to eastern Turkey. After abandoning its Kuransa test southwest of Adana at 12,539 ft., it is now drilling a new wildcat 22 mi. northwest of Raman, the government's long established field.

SOMALILAND—Stanvac plans a third test after encouraging shows of oil and gas from the Mesozoic in the No. 1 Dagah Shabell, the protectorate's first success, 16 mi. from the coastal city of Berbera. It will be spudded when a second test, now below 4,000 ft., is completed.

PHILIPPINES—The first of three projected wildcats on the island of Cebu has been spudded by Republic Resources & Development Corp. The test is slated for 7,500 ft.

PHILIPPINES—Stanvac last week spudded another test in an attempt to extend its gas find of last year in northern Luzon. The new No. 4 Ipil is 3.7 mi. to the south-southeast. Two earlier outposts, north and south, have been plugged and abandoned.

PARAGUAY—Only a noncommercial show of gas has been found in Pure Oil's fourth wildcat in the northern Chaco region, now drilling below 8,500 ft. The first three tests were dry. Pure is operator for a group including Williams Bros., Gulf, Sinclair, and Tidewater.

DEPT/Marketing

No Danger in Supermarket Stations Yet

The new service stations of Food Fair Stores, Inc., will pose no immediate disturbance in oil marketing. But if the many other food chains that are watching Food Fair decide to introduce gasoline retailing, the trend could grow to major proportions.

A few supermarket chains have already toyed with the idea of setting up service stations in their parking lots. Grand Union Co.'s partially owned affiliate, Eastern Shopping Centers, Inc., has recently announced that it is planning to build stations at new shopping centers. A New Orleans chain, Schewgmann Bros. Giant Supermarkets, is already on its way to building its third service station.

Although other food chains stoutly proclaim a primary interest in food, several of them—including Kroger Co., Safeway Stores, Inc., and American Stores Co.—will watch the Food Fair venture closely.

National Tea Co., a large midwestern chain, has already experimented with gasoline retailing by introducing a service cart at its parking lots. And last year, American Petrofina brought similar gasoline carts to a shopping center near Oklahoma City (PW—Dec.26'58,p32).

Food Fair's Stations: Some Salient Facts

- First stations will be ready within two months.
- 24 stations by April are planned for the greater Philadelphia area.
- Eventually Food Fair will extend the program to other East Coast cities; such as Harrisburg, Pa.; Wilmington Del.; Trenton, N.J.; New York and the Long Island suburbs.
- About 18 of the first 24 will sell only gasoline. Remaining 6 will offer "complete service facilities."
- Food Fair may sell under the "F-F" brand, at prices 2¢ to 3¢ below major brand prices.
- A "major" refiner will supply the gasoline.

FROM THIS STATION, Food Fair got the idea of opening a chain of over 100 outlets.

The most pressing question in the minds of oil marketers is not how far this trend will go—but what direction it will take.

Food Fair will sell its own brand of gasoline, with "the same low-margin, high-volume" technique that has characterized supermarket merchandising for decades.

Eastern Shopping Centers, on the other hand, will lease its stations to major oil companies, which will sell their own gasoline at branded prices. For instance, Cities Service Oil Co. has agreed to open a station at a new center near Washington, D.C., according to Matthew Bordone, Eastern vice-president.

One supermarket observer says it is natural for Food Fair to introduce its own brand of gasoline, since it has been in the forefront of the private-brand movement in supermarket merchandising.

But another observer notes that Food Fair generally establishes its own label in products that are sold more or less regionally such as coffee or condensed milk. By establishing a private brand of gasoline, Food Fair will be challenging brands that claim national distribution.

If Food Fair is successful, other food chains will certainly give closer consideration to opening their own private-brand stations. But the Food Fair move must be viewed alongside the Grand Union major-brand development.

Whether such stations will be used as loss leaders to attract motorists into the supermarkets is another worrisome factor for oil men. From all indications, however, Food Fair, at least, will not resort to this type of merchandising.

"Knowing Food Fair," says one supermarket observer, "they would not sell this way. Everything has got to earn a profit."

Food Fair has also denied any intention of selling gasoline at exaggeratedly low prices. "The service stations will have to earn a profit just like any other department in the store," a spokesman told PETROLEUM WEEK last week.

The possibilities for one-stop shopping and tie-in sales, however, are almost limitless.

Several oil men have been quick to point out that a service station at a supermarket could offer extensive automobile service while motorists shop at the supermarket or nearby stores.

Another advantage of a service station supermarket combination is the opportunity it affords for catching the motorist when he's in a buying mood. It's a perfect time to sell that can of antifreeze, one oil man notes.

Another observer remarks that Food

—But Wait

Fair's stores could profit from trading stamp promotion. The service stations would offer the same stamps as the food stores, providing a double inducement to come to the supermarket.

As yet, Food Fair has not confirmed any plans to offer stamps at the new stations. But most Food Fair stores use the Green stamps of Merchants Green Stamps Co., a subsidiary of Food Fair.

About the only thing the stations won't be able to offer, says one oil man, is credit cards. A Food Fair spokesman told PETROLEUM WEEK however, that although the company is not considering credit cards now, Food Fair will be responsive to a public demand for credit.

Food Fair will attempt to generate the highest gallonage for its new stations by letting them function as highway outlets in addition to serving shopping center patrons.

Food Fair got a taste of the gasoline business from Best Markets, Inc., when it acquired the chain last year. Best has four pumps tucked away on each of six parking lots (picture). To attract motorists to the stations, the store managers post signs that read "High Octane Gasoline—25.9¢."

The stations are, for the most part, not visible from the street. To overcome this drawback, Best has at times posted very low prices to lure motorists into the stations, according to industry sources.

Food Fair, however will dress up its new stations and, as far as possible, will place them right at the street or highway. In this way, the stations will not be entirely dependent on supermarket shoppers for sales.

To give the stations a still more self-sufficient status, Food Fair is considering keeping them open at night and on Sundays—when the markets are normally closed.

Food Fair has created a separate but wholly owned subsidiary (Food Fair Service Centers, Inc.) to operate the stations.

One oil man notes that supermarket stations may have to overcome zoning restrictions and other limitations.

One unexpected restriction—which could halt the whole movement—took form last week, when a Philadelphia representative introduced a bill in the Pennsylvania legislature that would ban supermarket service stations out of hand. Rep. Vincent F. Scarcelli (D., Phila.) said he sponsored the bill after hearing the complaints of station dealers in his district.

If the supermarket trend overcomes all its obstacles, it could present a serious threat to major-brand pricing practices.

The pressure on major brands along major highways crowded with private-brand stations is well known. And the lavish stations of Sears, Roebuck & Co. and other large retailers have also created formidable competition in many shopping center locations.

Food Fair's stations will undoubtedly follow Best Market's current practice of selling 2¢-3¢ a gal. below fair trade prices. Such a pricing policy could hurt fair trade.

In Connecticut, for example, a Sears private-brand station just north of New Haven is viewed by dealers throughout the state as a potential trouble spot. One nearby major brand dealer has had to introduce a private-brand gasoline just to meet the competition (PW—Aug.14'59,p85).

Unlike the majority of private-brand stations, Sears' stations—and Food Fair's—are able to bring to private brands considerable prestige, and quality TBA items, which tend to dispel the hesitancy of most motorists when they consider buying a strange brand of gasoline.

And as motorists find that they can be satisfied with private-brand gasoline, one oil man notes, the appeal of the major brand could fade.

What's New / IN MARKETING

A bill was proposed in the House last week that would allow the Federal Trade Commission to stop practices it challenges as illegal, before it has finally proven any illegality.

The bill, submitted by Rep. James D. Roosevelt (D., Calif.) and other representatives of the House Small Business Committee, is given little chance of passing this year. Nevertheless, the measure points up a revolutionary new attempt to restrain oil companies and others that are cited in FTC complaints.

The bill would require companies to submit to a hearing to avoid or delay compliance with a cease and desist order by FTC. Such hearings would precede any investigation of the complaint itself.

Traditionally, only the courts have issued temporary restraining orders. In previous congressional attempts to give FTC this power, the proposed legislation would merely have authorized FTC to request a federal court for an injunction.

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The American Gas Assn. is out to expand the dominance of gas in the new home market with a national promotional campaign aimed specifically at prospective new home buyers.

This Blue Star Home Program will permit AGA and gas marketers to publicize new homes that meet certain minimum standards in construction and in the use of gas appliances. Almost 50 gas companies have joined the program, representing every major area in the country. One utility, Arkansas-Western Gas Co., has already signed up 52 builders in its area who have agreed to furnish their new homes with gas appliances for water heating, house heating, and other services.

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Proponents of Fair Trade won a moral victory in Connecticut last week when two Sun Oil Co. dealers agreed to raise their prices to fair trade minimums.

Sun, which had sought to correct their violation of fair trade law through the Superior Court in New London, withdrew its request for an injunction against the dealers.

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Tidewater Oil Co. has expanded its Virginia marketing facilities by acquiring Delta Oil Co.

Through the purchase, Tidewater obtained approximately 130 service stations, along with hundreds of commercial and farm accounts, several bulk stations, and warehouses.

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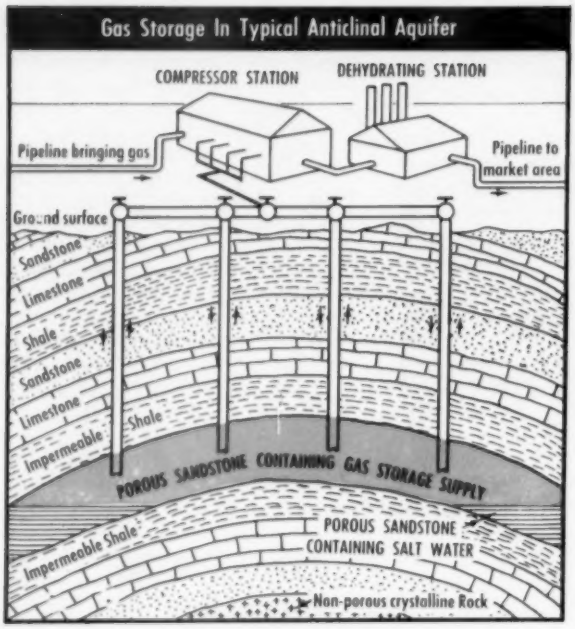
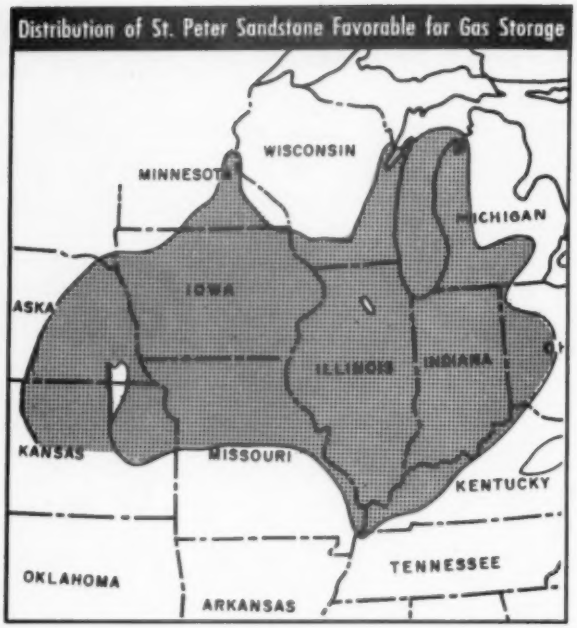
Continental Oil Co. has become the fourth major oil company to honor the Hilton Carte Blanche credit cards.

Following Socony Mobil Oil Co., Union Oil Co., and Tidewater Oil Co., Continental brings 8,000 more service stations in to the fold.





Aquifers: Low-Cost Gas Storage, Close

In several key Midwest market areas, aquifers—or underground, water-bearing formations—are providing dollar-saving gas storage for space-pressed suppliers.

Within the next three years, the American Gas Assn. forecasts, the natural gas industry will add 4-million new customers. As suppliers prepare for this expected sharp rise in demand, a major problem they face is the creation of new, inexpensive storage facilities, close to markets.

In areas containing depleted wells, the solution is ready-made. Where they're lacking—a condition prevailing near most major consumer markets throughout the country—only these other solutions exist: auxiliary pipelines for mobilization during peak demand periods; above-ground, tank storage; or underground facilities other than expended wells.

Several companies are finding the cost of additional pipelines or above-ground storage too steep.

Man-made caverns of various types have been widely used. But where suitable aquifers exist, suppliers are learning they have the cost edge.

Three major suppliers are now storing substantial quantities of gas in aquifers, with remarkable results. And these three, plus several others, are intensifying efforts to find more aquifers for future needs.

The existing aquifer projects are all in the Midwest. While exploration for additional aquifers continues in that area, water-bearing formations favorable for gas storage are being discovered in the Pacific Northwest and Maryland.

Throughout the summer, Natural Gas Storage Co. of Illinois has been working to enlarge its famed Herscher DOME, the first aquifer to be used for gas storage, and to find others nearer its Chicago market.

Herscher is about 70 mi. southwest of Chicago, near Kankakee, Ill. Natural Gas's reservoir in the Dome's Galesville formation currently holds 31-billion cu. ft. of gas, of which 15-billion are cushion. Four years ago, the Galesville contained only 20-billion cu. ft. In the dome's separate, 600-ft.-deeper Mr. Simon formation, now being developed, are another 10-billion cu. ft., with 8-billion serving as cushion.

During the 1956-1957 heating season, Herscher provided a total of 2.4-billion cu. ft. for delivery. As the dome proved its suitability for gas storage, greater quantities were injected. Expansion was timely, for the heating seasons since 1956-57 have been marked by severe cold and a rise in the number of Natural Gas's customers.

During last year's heating season, relying mainly on Herscher, Natural Gas was able to step up deliveries from storage to 11.4-billion cu. ft.

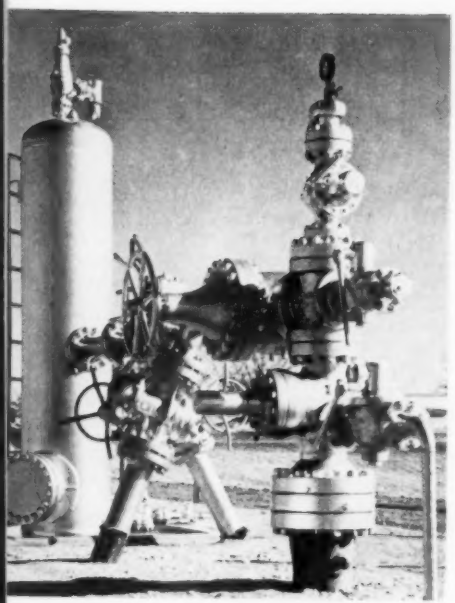
The development of a large aquifer a few years ago near St. Louis by Laclede Gas Co., a main city supplier, enabled that company to move 100,000 homes from its waiting list to its customer list.

Before it developed the aquifer, Laclede was supplying about 100,000 homes in the St. Louis area. Another 100,000 were clamoring for service. But the company was confronted with these facts: The area's usually mild climate created a demand for gas during only three or four months of the year, and this short demand period wouldn't support a heavy outlay for more pipelines or storage tanks to guarantee an increased winter supply.

Laclede saw as the only answer utilization of natural underground reservoirs, if proximity and formation made that practical.

With the help of the Missouri State Geological Survey, core drilling began in 1953. Drilling continued to a depth of 3,420 ft. A big, suitable aquifer was found.

Injection of gas to a depth of 1,450 ft. was commenced in December, 1955. Within a short time, the aquifer was supplying more than 20% of Laclede's average deliveries of 480-million cf/d.



WELLHEAD INSTALLATION at Laclede Gas Co. storage aquifer comprises meters, scrubber, and injector-withdrawer.

to Markets

During the 1958-59 heating season, Laclede's withdrawals reached 1.8-billion cu. ft., greatly exceeding its own expectations about the aquifer's capacity.

During the slack summer months, the company replenishes its reserves, pumping back in as much as 16-million cf/d—the capacity of its compressors.

Northern Natural Gas Co., also counting increasingly on aquifer storage, may soon have the biggest aquifer storage project in the industry.

At Redfield, Iowa, the company is building facilities to develop an aquifer with ultimate storage capacity of 50-billion cu. ft. If it has now been granted Federal Power Commission approval, which was denied once because of leakage. Northern Natural this winter will begin deliveries to Des Moines of 30-million cf/d.

If and when the aquifer is fully developed, however, it should provide peak day supplies of 200-million cu. ft.

Test withdrawals are slated for December from the company's smaller Troy Grove (Ill.) aquifers.

Inventory in the two reservoirs there, the Mt. Simon and the Eau Claire, is 1.6-billion cu. ft. Total capacity is estimated at between 10-billion and 15-billion cu. ft.

An unnamed Pacific Northwest firm reportedly is showing a keen interest in this still-new kind of storage.

It is reported to be surveying formations in Washington's Lewis County in an effort to find two suitable aquifers.

Illinois Power Co. also is engaged in exploration, but it's not known where.

Washington Gas Light Co. wants to use a 30-billion-cu. ft. aquifer near Brandywine, Md., to assure gas supplies for high winter demands.

But efforts to get storage rights have met stiff opposition. The company obtained the consent of owners of 70% of the land needed for the project. Legislation that would have permitted use of the remaining portion, however, was defeated in the state's House of Delegates.

This set-back underscores an attitude that gas companies may encounter elsewhere in efforts to develop aquifers for gas storage. That attitude, as expressed by Maryland's dissenting landowners, is a fear that gas storage in water-bearing strata may result in contamination of water supply. They also considered the project a safety hazard that would cut the value of their land.

Not every aquifer is suitable for gas storage. It must be of highly-permeable sandstone, and of closed anticlinal structure.

The reservoir rock must be sufficiently upwarped to provide a dome-like structure to prevent lateral escape of gas. The reservoir ceiling must be of impermeable caprock to prevent upward escape.

Gas is stored by injecting it into the porous sandstone, where it displaces the water downward. By injecting enough gas to exceed original reservoir pressure, a "gas bubble" is created that will force gas upward through opened outlets when it is needed.

Outstanding examples of favorable formations are those used by Laclede and Natural Gas.

Natural Gas's Herscher Dome is an elongated, north-south trending, asymmetrical anticline, having an areal extent of about 8,000 acres, and a structural closure of 200 ft. Porosity of reservoir formations averages 17%, considered good, and average permeability is 465 millidarcies, considered very good.

Laclede's aquifer is an anticlinal structure of some 25,000 acres. Porosity and permeability are said to be good.

Suitable aquifers are known to be present in the St. Peter sandstone formation that extends from northern Michigan to northern Tennessee, and from central Kansas to central Ohio.

The stratum lies under all of Indiana, and most of Illinois and Iowa. From these states, it extends long fingers into Minnesota, Wisconsin, Michigan, Ohio, Nebraska, Kansas, and Missouri (map). It also runs in a narrow band across northwestern Kentucky, pushing slightly into Tennessee.

Aquifers appear to be the answer to cheap storage, where they exist and played-out wells don't.

"Storage in anticlinal aquifers is the logical answer to the problem of creating gas storage facilities near the nation's many large population centers not naturally blessed with depleted gas reservoirs," says Joseph Kornfeld, Tulsa, consultant on gas storage and related problems.

"Companies that have depleted fields readily available have little, or no, interest in aquifers," observes J. Standford Setchell, American Gas Assn. official, "But to those without depleted fields, but with aquifers, the latter look mighty attractive; If you can find a good aquifer, it's nearly as good as a depleted field."

EASY-FLOW
PRESSURE CONTROL VALVES

- Stops gas lock
- Retards paraffin
- Keeps unit balanced
- Prevents well heading
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- Increases pump efficiency
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- Needs no special or additional fittings

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What's New / IN TRANSPORTATION

A newly-formed labor-management group will ask Congress for legislation to assure a greater share of crude imports for U.S. tankers. The group is called the Joint Committee for American-Flag tankers.

U.S. tanker participation in oil imports has dropped from 76% in 1946 to less than 2% at present, the committee says.

Labor members Joseph Curran, president of the National Maritime Union, and Paul Hall, president of the Seafarers International Union, lay the decline to "un-American policies of the major international oil companies."

•

The first tanker order in the past 21 months to a U.S. shipyard was placed recently with Newport News Shipbuilding & Dry Dock Co.

The company will construct a 41,000-tonner for Newport Tankers Corp.

•

Texas Illinois Natural Gas Pipeline Co. last week got examiner's approval for new pipeline facilities in Starr and Hidalgo Counties, Tex.

The company wants to spend about $4-million for additional compressor horsepower, and $234,700 for a 10-mi., 8-in. pipeline.

•

A diesel-powered Russian passenger ship will soon be running on LP-gas, with only minor engine changes, according to Tass, the Soviet news agency.

The Ukrainia will be the second of the Soviets' Caspian Sea fleet to be switched. A changeover of the entire fleet is planned. Russia estimates fuel savings will amount to $1,375,000 a year.

•

Swift, automatic tank gauging has replaced arduous, old fashioned hand gauging at the Port Moody (B. C.) refinery of British American Oil Co., Ltd.

With the new system, operated from a central control room, gauging time for all the refinery's tanks has been cut from three hours to 20 minutes.

Floats in the tanks measure levels, which are transmitted to a pulse receiver by the turn of a dial. Temperature is also measured and transmitted, for the asking.

The new equipment is manufactured by Vapor Recovery Systems Co., Compton, Calif.

•

European resale price of foreign-flag T-2 tankers is at an all-time low of $250,000. Informed sources say the price may drop even lower.

•

A jet-engine-powered compressor will be moving natural gas through a main Gulf-to-Northeast pipeline sometime next year.

The jet engine, a modified version of the Pratt & Whitney Aircraft J-57, has been adapted for gas transmission use by Cooper Bessemer Corp.

The J-57 powers all U. S. commercial jet aircraft. The hot, compressed gases it produces to provide enormous thrust for planes will be converted into rotative horsepower in the Cooper-Bessemer version.

Park Your Tanker In Delaware Bay

Shipping interests are asking for a marked "parking lot" for supertankers in lower Delaware Bay.

Tankers of more than 45,000 tons have had to anchor in the lower bay for lightering. With draft reduced to 40 ft., they can then proceed to upriver refineries.

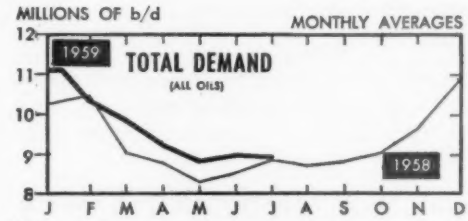
But lack of navigational markers designating the position of the big vessels endangers other shipping, petitioners contend.

The request has been made to Army engineers by the Joint Executive Committee for the Improvement & Development of the Philadelphia Port Area, and the American Merchant Marine Institute.

They ask that the area, about 15 mi. north of Lewes, Del., be set aside specifically for the big tankers, and that it be charted and clearly marked by buoys.

PETROLEUM WEEK'S

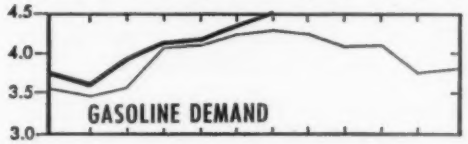
Fingertip Figures



Figures for period ended August 28, except as noted

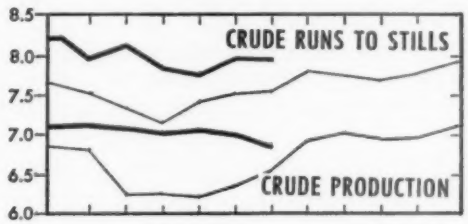
TOTAL DEMAND

Latest 4-week average	9.065
Year ago	8.714



GASOLINE DEMAND

Latest 4-week average	4.391
Year ago	4.289

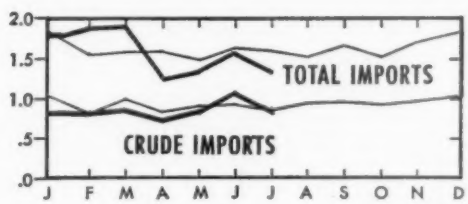


RUNS TO STILLS

Latest week	8.362
Previous week	8.214
Year ago	7.937

CRUDE PRODUCTION

Latest week	6.821
Previous week	6.817
Year ago	6.863

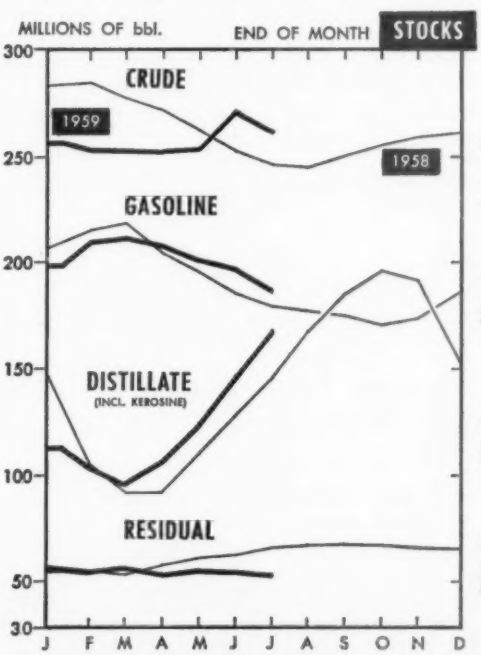


TOTAL IMPORTS

Latest week	1.325
Previous week	1.585
Year ago	1.553

CRUDE IMPORTS

Latest week	.763
Previous week	1.049
Year ago	.844



CRUDE STOCKS

Week-ended 8-22	258.1
Previous week	261.8
Year ago	251.0

GASOLINE

Latest week	183.1
Previous week	181.4
Year ago	173.5

DISTILLATES

Latest week	190.6
Previous week	183.6
Year ago	166.9

RESIDUAL

Latest week	56.4
Previous week	56.1
Year ago	67.0

Refiners last week broke all records for this year by sending refinery runs up to 8,362,000 b/d—the highest level since December, 1956.

At a time when nearly everybody has been calling for reduced runs, refiners for the second consecutive week ran more than 8-million b/d. The previous week's "excessively high" rate of 8,214,000 b/d came as a surprise to the industry. This week's figure is even more unexplainable.

The high runs sent gasoline production soaring to a record 4,309,000 b/d.

This pushed gasoline stocks up to 183,082,000 bbl.—just about where they were at the beginning of August.

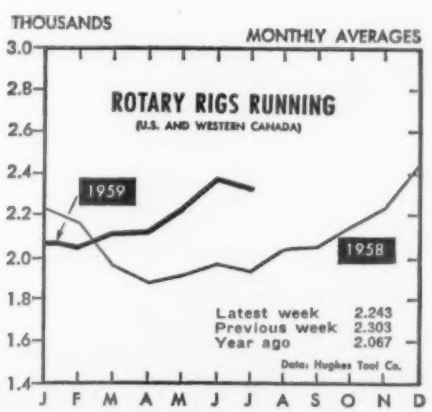
This runs counter to the decline that normally precedes a holiday weekend.

Price weaknesses already had developed in several areas. New England price declines threaten to spread to other East Coast areas. And price disturbances have been reported in Dallas, Denver, Salt Lake City, and Seattle.

The excessively high runs have also had a tightening effect on the spot crude market, as crude stocks throughout the nation have declined by 12-million bbl. over the last six weeks. Last year's decline for this period was only a scant 2-million bbl.

The high refinery runs also caused distillates stocks to climb by 7-million bbl. to 190.6-million bbl.—almost 24-million bbl. over last year's level.

This high rate of increase is almost certain to have a damaging effect on fuel oil prices. Refiners consider that 190.8-million bbl. is "ample" to begin the November heating season. Distillates have almost reached that level already.



The Market Trend

South of the Border: Tough Enchiladas

Mexico is frankly worried about the Texaco-Paragon merger plans. Paragon, of New York, is Mexico's biggest single account, lifting about two-thirds of oil exports at Tampico. That deal comes up for renewal on Dec. 31 next.

Pemex, the Mexican oil agency, has a long history of sales to Paragon, and is currently moving close to 30,000 b/d. Pemex started selling to Paragon in 1952 on a five-year contract. This later was extended for two additional years to include 1958 and 1959.

But Pemex hasn't as yet been able to get a commitment for a renewal. And there is a chance that the deal may be out the window. For if Texaco and Paragon join up (PW—Aug.7'59,p50), the suggestion is strong that Texaco will prefer to import its own residual fuel from Trinidad.

If Mexican fuel loses out to Trinidad, Pemex will be on a spot. For the bunker "C" fuel market overseas is very sloppy. New customers are not easy to come by. Also, Mexican bunker oil is high in sulfur.

Pemex needs world outlets for residual, not only for the cash involved, but to keep its refineries in balance. Mexican gasoline consumption is rising rapidly. Outlets for bunker oil are needed just to keep the refineries in operation.

So, while the Paragon deal simmers along, Pemex has started looking around for some new customers. A possible deal is in the making with private buyers in the Sao Paulo area of Brazil, and this could mean an additional 10,000 b/d of heavy oil sales. Pemex may reopen a sales office in Brazil, too, which has been closed since 1952.

As a political guess, there seems to be a good chance that Pemex will continue to enjoy some of its U.S. East Coast bunker sales. Compromise is a byword in international dealings. And Texaco may want to keep an "in" in Mexico just to hedge its bets.

Algerian Cargo To W. Germany:

The first ship charter to lift Hassi Messaoud crude from Algeria came to light last week. The T2 tanker Tynefield was fixed for mid-September loading to North Europe at nine shillings and sixpence.

But chartering sources were unable to explain the scheduled German destination for this first chartered cargo.

Steel Strikes hit No. 6 Oil:

The steel strikes have knocked the No. 6 market in the head in the Midwest and the Rockies. Before the strike, refiners were asking and getting $1.60 a bbl., f.o.b. Oklahoma.

Last week, ordinary residual was available at discounts netting as low as $1.10 a bbl. in Oklahoma, and 90¢ in Montana and Wyoming.

A New Market For Russia?

Latest Russian selling gambits seem aimed at Australia, but that country isn't having any—at least not yet. Russian strategy was to sell oil, timber, and machinery, and take back Aussie wool in return.

Russia continues to press, also, to expand its heavy fuel markets in northern Europe. Latest reports say the Soviet quotes on "C" fuel to Scandinavia are running around $12-13 a ton.

The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of August 31

Bold face type indicates changes from previous week

KEY PRICES–REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 98 oct prem. 12.25-13
- Gasoline, 92 oct reg. 11-11.5
- Kerosine 8.125-10.375
- Heating oil, No. 2 ..... 7.75-9.875
- Gas oil, 48-52 d.i. 8-10.125
- Fuel oil, bunker "C" $2.00-2.10

Caribbean, cargoes
- Avgas, Grade 100/130 ..... 15.25
- Gasoline, 93 oct research prem 11.25
- Gasoline, 87 oct research reg 10.375
- Gasoline, 79 oct research 9.625
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 8.375
- Heating oil, No. 2 ..... 7.75-8.125
- Gas oil, 48-52, d.i. 8-8.25
- Fuel oil, bunker "C" $2.00

New York Harbor, barges
- Kerosine 9.35-9.6
- Heating oil, No. 2 ..... 8.85-9.1
- Fuel oil, No. 6 ..... $2.37-2.47

Okla-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg. 12-12.5
- Kerosine 9.5-9.875
- **Heating oil, No. 2 ..... 8↓-8.875**
- **Fuel oil, No. 6 ..... $1.50↓-1.80**

Chicago, bulk
- Gasoline, 91 oct reg. 12
- Heating oil, No. 2 ..... 9.125-10.85
- Fuel oil, No. 6 high sulfur 7.4-7.5

Los Angeles, rack
- Gasoline, 88 oct reg. 11-12.65
- Diesel fuel, PS 200 ..... 8.5-11.25
- Light fuel, PS 300 ..... $2.80
- Heavy fuel, PS 400 ..... $2.15-2.35

Natural Gasoline, Grade 26-70
- FOB Group 3 ..... 4.5
- FOB Breckenridge, Tex. 4

LP-Gas
- Propane, Oklahoma (Group 3) 4
- Propane, Baton Rouge 4.625-4.875

Pennsylvania Lubes
- Bright stock, 25 p.t. 22
- 200 vis. neutral 25 p.t. 23

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 24-25
- Neutral, solvent 200-210 vis. 20.5-21.5

Gulf Coast Lubes
- Bright stock, solvent 95 v.i. 24
- Neutral, solvent, 200 vis. 20.5

Eastern Hemisphere

Singapore (Pulau Bukom), cargoes
- Avgas, grade 100/130 ..... 16.5
- Gasoline, 79 oct research 10
- Kerosine 10.5
- Gas oil, d.i. minimum 10

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 ..... $2.77-2.97
- North Dakota, 36.0-36.9 ..... 2.62-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 ..... 3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9 ..... 2.92-3.22
  - West Texas, sweet, 36.0-36.9 ..... 3.00
  - West Texas, N. M., inter., 36.0-36.9 ..... 2.93
  - West Texas, N. M., sour, 32.0-32.9 ..... 2.71
  - East Texas, flat 3.05-3.25
  - Mirando, 28.0-28.9 ..... 3.31
- Illinois Basin, flat 3.00
- Pennsylvania Grade, Bradford dist., flat 4.25
- California, Signal Hill, 21.0-21.9 ..... 2.50-2.54†
- North Louisiana-Arkansas, 36.0-36.9 ..... 2.77-3.02
- Wyoming, sweet, 36.0-36.9 ..... 2.85-2.90
- Wyoming, sour, 32.0-32.9 ..... 2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.) 2.38
- Leduc-Woodbend (Alta.) 2.53
- Redwater (Alta.) 2.42
- Steelman A (Sask.) 2.435
- Virden (Man.) 2.31

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 47.0-47.9, Tucupido $3.34
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.10
- Oficina, 35.0-35.9, Puerto la Cruz 2.78-2.80
- Tia Juana, Medium, 26.0-26.9, Amuay 2.30
- Bachaquero, flat, Las Piedras 1.73-1.88
- Tarra, 38.0-38.9, San Lorenzo 2.83
- Lagunillas Heavy, flat, Cardon 2.10

†*Differential per deg. of grav. varies.*

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura $1.89-1.90
- Safaniya, 27.0-27.9, Ras Tanura 1.50
- Iran, 34.0-34.9, Bandar Mashur 1.86
- Iran, 34.0-34.9, Abadan 1.81
- Iraq, 35.0-35.9, Fao 1.80
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.67
- Qatar, 41.0-41.9, Umm Said 2.05
- Neutral Zone, Burgham, 23.5-24.4, Mina Saud 1.51
- N. Zone, Eocene-Ratawi, 20.5-21.4, Mina Saud 1.38

Middle East, Eastern Mediterranean
- Arabian, 34.0-34.9, Sidon $2.27
- Iraqi, 36.0-36.9, Tripoli, Banias 2.31

Far East, Cargoes FOB Lutong, Sarawak
- Seria Light, flat $2.57

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean (USMC—32½%) $1.92↓
- U.S. Gulf-New York, dirty ..... (USMC—32½%) $1.92
- NWI-USNH, dirty ..... (USMC—55%) $1.24
- NWI-UK/Cont., dirty ..... (Scale—30%) 22.9*
- Persian Gulf-UK/Cont., dirty ..... (Scale—65%) 23/3*
- Persian Gulf-USNH, dirty ..... (USMC—75%) $3.18

**Sterling.*

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One of Britain's largest and best known steel fabricators desires to contact American contractors to the Oil and Chemical Industries interested in having their specialized products manufactured under license in the United Kingdom. All facilities available for manufacture and machining fabrications up to 75 tons each. Please contact J. S. Moffat, Sales Director, Weldall & Assembly Ltd., 10 Norfolk Street, London, W.C.2.

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DEPT/Personals

J. H. DOORES has been elected vice-president of Esso Export Corp., international marketing affiliate of Standard Oil Co. (N. J.), replacing **P. C. Miller,** who is retiring. Doores joined the Jersey Standard organization in 1944 as operations analysis engineer at Esso Standard Oil Co.'s Baton Rouge (La.) refinery. He transferred to the coordination and petroleum economics department of Jersey in 1953.

J. H. Doores

F. B. Fulenwider

FRANK B. FULENWIDER is the new general manager of supply and transportation for DX Sunray Oil Co.'s marketing department. Fulenwider spent 26 years with Tidewater Oil Co. before joining DX Sunray; he served most recently as assistant marketing manager of Tidewater's Western division in Los Angeles. In his new post, he will direct operations involving product exchanges, product supplies to primary terminals, supervision of traffic activities, and supervision of all truck transport operations.

ALBERT E. ERNST is a newly-elected vice-president of Continental Oil Co., and **Eugene J. McNeely** has been named a director. In his new position, Ernst will be in charge of developing the company's foreign distribution of crude, natural gas, and refined products, and will be headquartered in New York City. McNeely is executive vice-president, director, and member of the executive committee of American Telephone & Telegraph Co.

JOHN G. McLEAN and **L. C. PETERS,** vice-presidents of Continental Oil Co., have been promoted to new executive positions. McLean, vice-president in charge of coordinating and planning, becomes vice-president in charge of financial and transportation activities, responsible for the company's financial, transportation, marine transportation, and aviation operations. Peters, formerly financial vice-president, is promoted to vice-president in charge of coordination and supply. He will direct the coordinating and planning department, and Conoco's pipeline, crude trading, product supply, and product distribution activities.

CHARLES H. KING became manager of the employee relations staff of the marketing department of Standard Oil Co. (Ohio) on Sept. 1, and John H. Voorhees succeeded King as chief of the employee relations division of the manufacturing and research departments. Voorhees joined Sohio in 1940 and has been general process superintendent at the company's Lima (Ohio) refinery since 1957.

C. H. King

N. J. Alexander

NORMAN J. ALEXANDER has been elected to the board of Medallion Petroleums, Ltd., Calgary. He is deputy general manager of James Richardson & Sons. Officers elected for the coming year are: E. A. Galvin, president; John Drybrough, vice-president; Brian R. B. Gore, secretary; and J. K. Fletcher, assistant secretary.

H. C. Fowler

K. J. Hughes

D. B. Taliaferro

H. C. FOWLER, K. J. HUGHES and **D. B. TALIAFERRO** will head the newly-designated U. S. Bureau of Mines Bartlesville Petroleum Research Center. Fowler, superintendent of the Bartlesville experiment station since 1945, will be the research center's first director. Hughes, a member of the station staff since 1943, has been named superintendent, and will assist Fowler in administrative management. Taliaferro, formerly assistant superintendent and chief of the station's production branch, will head the new division of mineral resources.

J. J. Blaydes

W. L. Laflin

J. J. BLAYDES becomes manager of the Texas Gulf Coast division and **W. L. LAFLIN** manager of the Louisiana Gulf Coast division, of Welex, Inc. Blaydes, a veteran of 19 years in oil well servicing, has been with Welex since 1952. He was most recently assistant division manager at Houston. Laflin, a former assistant division manager, will be headquartered in New Orleans.

ROBERT C. NEAIDENGARD is the newly-elected controller of Rockwell Mfg. Co., in charge of the headquarters accounting, tax, and systems departments. Before joining Rockwell in 1949 as headquarters office manager in charge of sales, Neaidengard spent 29 years with Western Electric Corp.

R. C. Neaidengard

J. Helton

JIMMY HELTON becomes West Coast district manager, with headquarters in Oakland, Calif., for George E. Failing Co., manufacturer of portable drilling rigs. **J. W. Cooper** succeeds him as manager of the company's Canadian subsidiary, George E. Failing Supply Co., Ltd., Edmonton, Alta.

JOHN A. SNARENBERGER is the new sales engineer in the Kansas City territory for the engine division of Nordberg Mfg. Co., with headquarters in Wichita, Kan. In his new position, he will assist **T. J. Adams**, Kansas City district manager, in municipal, industrial, and pipeline sales of Nordberg's two and four-cycle engines. Snarenberger has had 14 years experience in the diesel engine field.

WILLIAM F. NEWBOLD is the new director of research for the Brown Instruments Division of Minneapolis-Honeywell Regulator Co., in Philadelphia. He succeeds **Walter P. Willis**, who has been named to the new post of technical advisor to the director of engineering. Newbold was formerly assistant research director.

R. STANLEY FIELD becomes market analyst for Pfaudler Co., a division of Pfaudler Permutit, Inc., manufacturer of glassed-steel and alloy equipment. In his new position, he will determine the potential sales of existing and contemplated products. Previously, Field was manager of sales research for Trans World Airlines, and before that was a senior consultant for Alderson Associates, Philadelphia.

R. S. Field

W. C. Walters

WILLIAM C. WALTERS has been appointed liaison engineer and production coordinator for the manufacture of oil well products for Pacific Pumps, Inc., one of the Dresser Industries. Williams was formerly with Axelson Mfg. Co. in various engineering and sales executive positions. His headquarters will be at Pacific's main plant, at Huntington Park, Calif.

EDWIN T. RICHARD joined the marketing department of Monsanto Chemical Co.'s inorganic chemicals division, St. Louis, as manager, marketing research, on Aug. 17. Richard formerly served in the marketing research department of U.S. Steel Corp., Pittsburgh.

ROBERT V. PEASLEE is elected vice-president of The Ralph M. Parsons Co., Los Angeles. He will be located in the firm's New York offices.

R. V. Peaslee

C. Kuhn

CHARLES KUHN has been appointed vice-president-sales manager of Dresser Manufacturing Division, Bradford, Pa., one of the Dresser Industries. Kuhn began his career with Fansteel Metallurgical Corp., and in 1952 became vice-president and general sales manager of that company. He joined Dresser Manufacturing Division as sales manager last year. In his new position, he will be responsible for the marketing of the company's line of pipe joining and repair products.

—SEARCHLIGHT SECTION—

ANOTHER LARGE AUCTION

Going Out of Business Sale

CARLISLE DRILLING AND SERVICE, INC.

ARTESIA, COLO.

Monday, Sept. 14, 1959

Inspection Starting Sept. 8

Registration Begins at 9 on Sale Day

TRUCKS, TRAILERS, WELL SERVICING RIGS, REAL ESTATE, OTHER RELATED EQUIPMENT

Carlisle Drilling and Service, Inc. is quitting business and has commissioned Wayne Cook Associates, Inc. to sell their valuable real estate and all their equipment and supplies at public auction to the highest bidders.

EVERYTHING POSITIVELY MUST AND WILL BE SOLD WITHOUT ANY MINIMUM OR RESERVATION.

The sale will include:

REAL ESTATE consisting of 12 lots of block 11 in Artesia, Colo. and includes two 4-room cottages, three 5-room cottages, large shop building and other improvements.

WELL SERVICE EQUIPMENT including MIW 2-speed drawworks, Waukesha powered; Franks trailer rig with P42 MIW hoist, Hercules power, Franks 92 foot mast; Trailer mounted PP42 MIW double drum hoist, Hercules power, 90 foot mast; Truck mounted unit, Muskogee Hoist, Waukesha power, 65 foot mast, FWD truck; Wilson Super double drum clean out rig, Waukesha, 50 foot mast; Hillman Kelly Air Tubing Tongs; Foster Hyd. Tubing Tongs; and other equipment.

TRUCKS, TRAILERS including 1956 Mack B61 Tractor; Int. KB11; Int. ½ Ton pickup; Chev. and Ford sedans; Jeep station wagon; 18 ft. Zimmer House Trailer; 18 ft. Travelon House Trailer; single axle float and pole trailers; auto trailer.

PUMPS AND ENGINES incl. G-D 5x10 and 5x8 Pumps; Light Generators, Hercules, Wisconsin and A-C engines, 2 in. water pump.

also **DRILLING AND SERVICE FITTINGS, MUD PITS, TANKS, TOOL HOUSES, PIPE, TUBING, TOOLS, OFFICE EQUIPMENT, SHOP EQUIPMENT SCRAP AND MUCH MORE.**

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AS THE EDITORS SEE IT

Is Oil Heading for a Relapse?

BARRING AN UNEXPECTED "CRISIS," the oil industry is heading into a bleak fall and winter. And the colder the winter, the bleaker the industry's economic outlook may become.

The problem this time is the imbalance between gasoline and distillate inventories. The [illegible] ions of [illegible] gest [illegible] ts [illegible] y in [illegible]

It's Time for Oil's September Song

THE PETROLEUM INDUSTRY'S ECONOMIC POSITION now is about the same as it was a year ago. The facts are the same; only the figures have changed—higher on the oversupply side.

A year ago today, PETROLEUM WEEK's editorial (above) was on the subject of too much gasoline and possibly not enough distillate fuel for the fall and winter—a serious inventory imbalance. The over-all outlook then was one of relapsing into the oversupply plague from which the industry was trying to extricate itself.

The same question can be asked today: Is oil heading for a relapse? The magnitude of the mounting oversupply provides an affirmative answer to the question.

Despite labor disputes that reduced the operations of five refineries in July and are still affecting some of them, refiners show no evidence of controlling runs to help improve the inventory position. When the plants of Indiana Standard and one of its affiliates were forced to cut back, other refiners stepped up throughput rates. And when the struck refineries came back on stream, no one appeared ready to cut back.

The rate of refinery operations, which reached 8.2-million b/d two weeks ago, makes no economic sense whatever when measured against the rate of inventory accumulation.

The price of No. 2 heating oil in the Gulf Coast spot market has fallen to 7¾¢ a gal., a four-year low, nearly a full cent below the price at the end of August, 1958. And hanging over the Gulf price is a weak East Coast price.

EARNINGS REPORTED BY MOST OIL COMPANIES for the first six months of 1959 were generally good, and many company presidents predicted that the last half would also show a favorable trend.

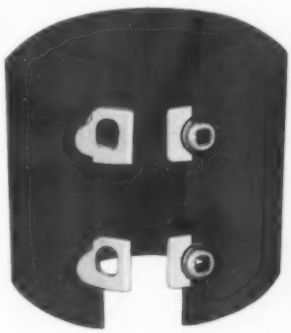
Possibly some companies will have good earnings, but the continued inventory surplus and weak prices will not improve the position of a great many others.

Only BJ offers you a full line of protectors!

...allowing you to match protectors to your job requirements!

NEW GRIP-LOK—Now BJ introduces Grip-Lok... the new, economy model latch-on protector with locking pin. Grip-Lok extends the use of time and labor saving latch-on protectors to applications that had previously been unfeasible... actually cost less than stretch-on types where removal and reinstallation costs are involved! Economical Grip-Loks allow double-rubbering of pipe in crooked hole... can be used on the full string in many shallow and medium depth wells. Grip-Loks will not move or come loose in use... can be installed or removed by your crew in less than 10 seconds!

PREMIUM-GRADE SAFE-LOK—BJ's finest latch-on protector... featuring a longer body with more rubber for maximum bearing surface. Thanks to patented cam lock construction, they can be easily installed in 8-10 seconds by regular crews, using a simple wrench. Use versatile Safe-Loks on top hole pipe... as rotary hose protectors, Kelly Sub protectors and stabilizers, bumpers, cushions and other applications. They pay for themselves in rig time saved!



ECONOMICAL STRETCH-ON TYPE—BJ Stretch-On Protectors have been a standard in the world's oil fields for more than 30 years. Formulated to strictest standards by BJ engineers, they are designed to provide the longest service life for the smallest investment per stand of pipe. Your choice of Regular Protectors... Oil-Resistant Protectors... and Polar Protectors for cold weather use. BJ field warehouses and crews provide fast, efficient installation and removal service.

New 6-page illustrated Bulletin gives details and specifications on BJ's full line of drill pipe and casing protectors. Write today for your copy!

BYRON JACKSON TOOLS, INC.

A subsidiary of Borg-Warner Corporation

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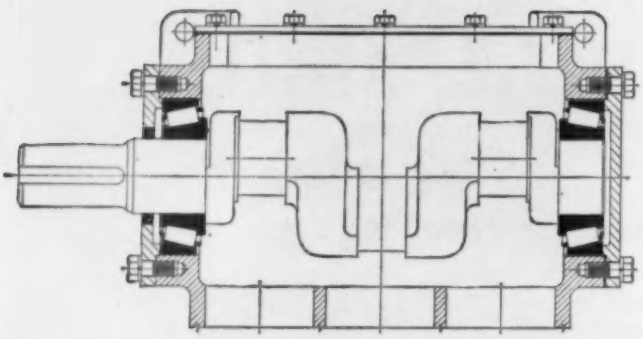
New pump uses TIMKEN® bearings to get more capacity in less space, at lower cost



How **WORTHINGTON CORPORATION** mounts the crankshaft of its KCA waterflood pump on capacity-packed, space-saving Timken bearings to take heavy loads, assure dependable performance.

THIS new Worthington KCA waterflood pump is a real do-it-itself worker. It runs unattended, keeping pressure up day-in-and-day-out, under constant, heavy loads.

To keep design compact and economical, yet able to take the heavy loads, engineers selected Timken® tapered roller bearings for mounting the crankshaft. Compared to other types of bearings, they found Timken bearings gave them the higher capacity needed, in less space, and at lower cost.

Their tapered construction lets Timken bearings take both radial and thrust loads. And full-line contact between rollers and races gives Timken bearings the extra load-carrying capacity so vital in rugged oil field pumping. Crankshafts stay positively aligned; pumps work steadily, efficiently—with Timken bearings.

Because these capacity-packed Timken bearings can take greater loads—size for size than other types of bearings, designs can be simpler, more compact. Costs can be reduced. And because Timken bearings keep shafts concentric with the housing, closures are more effective. Dirt stays out, lubricant in, pump maintenance down.

And Timken bearings save power because they practically eliminate friction; they *roll* the loads. They're geometrically designed and precision-made to roll true.

Timken bearings make machines better. And better machines do better work. That's Better-ness. Look for its symbol, bearings trade-marked "TIMKEN", on the machines you buy or build. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant St. Thomas, Ontario. Cable: "TIMROSCO".

This symbol on a product means its bearings are the best.

BETTER-ness rolls on **TIMKEN®** tapered roller bearings